

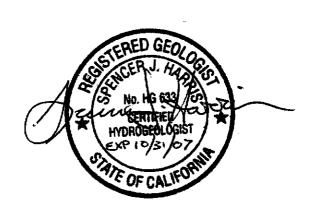


## TASK 3

## LOS OSOS UPPER AQUIFER WATER QUALITY CHARACTERIZATION

## Prepared for the

## LOS OSOS COMMUNITY SERVICES DISTRICT



June 2006

CLEATH & ASSOCIATES
1390 Oceanaire Drive
San Luis Obispo, California 93405

(805) 543-1413



## TABLE OF CONTENTS

	•••	<b>PAGE</b>
<u>SECTION</u>		<del></del>
INTRODUCTION	V	1
TO TOTAL TOTAL	S OF ANALYSIS	
mr DIC I OC	TATIONS	
SAMPLING PRO	OCEDURES	6
ANALYTICAL 1	RESULTS	14
DISCUSSION .		16
CONCLUSION	\$	16
REFERENCES	<b>3</b>	
List of Tables		
Table 2 Table 3 Table 4	Upper Aquifer Sampling Locations Upper Aquifer Sampling Objectives General Water Quality Parameters Solvents, Service Station Products, PCB's Herbicides and Pesticides Emerging Contaminants	
List of Figures		
Figure 1 Figure 2	Task 3 Upper Aquifer Well Locations Stiff Diagrams	
List of Appen		
Appendix A Appendix B Appendix C Appendix D	Sampling Procedures Ground Water Monitoring Field Logs Laboratory Reports Communication dated May 16, 2006 from Dr. John Vargo	



#### INTRODUCTION

The Los Osos Valley ground water basin is currently in overdraft. Sea water intrusion is active in the heavily pumped lower aquifer, while the upper aquifer has been underutilized by purveyors due to elevated nitrate concentrations. The July 2005 Draft Water Management Plan includes management strategies aimed at balancing production between upper and lower aquifer zones, mitigating sea water intrusion, and providing a sustainable water supply for the community at buildout. One of the strategies for balancing production is to incorporate more upper aquifer water into the community water supply. This strategy is currently being pursued by the Los Osos Community Services District with funding through the California Infrastructure and Economic Development Bank (CIEDB) program.

Water quality of the upper aquifer in Los Osos has historically been characterized primarily with respect to general minerals and nitrogen compounds. Task 3 of the July 2005 Water Management Plan expands the scope of testing to include contaminants that may be associated with wastewater return flows or with other local land uses. The purpose of Task 3 is to provide characterization of upper aquifer water quality other local land uses. The purpose of Task 3 is to provide characterization of upper aquifer water quality so that the potential monitoring and treatment requirements for future uses of this resource can be anticipated. The scope of work for Task 3 included water sampling, laboratory testing, and interpretation of the analytical results with respect to the implications for expanded use of the upper aquifer. Cleath & Associates would like to acknowledge the participation and assistance of the Los Osos Community & Associates would like to acknowledge the participation and assistance of the Los Osos Community Services District Utilities Department, Golden State Water Company, Calscience Environmental Laboratories, and the University of Iowa Hygienic Laboratory.

## CONSTITUENTS OF ANALYSIS

Prioritized listings of possible contaminating activities surrounding existing Los Osos Community Services District supply wells were developed under the Drinking Water Source Assessment and Protection (DWSAP) program in 2001. Those activities common to most of the areas reviewed that produced the greatest well vulnerability score included high density septic systems, permitted waste discharges from commercial or multi-family leach fields, high density housing, gas stations (existing and historic), and storm water detention facilities/discharge points. Other activities producing high well historic), and storm water detention facilities/discharge points. Other activities producing high well vulnerability scores in some of the areas reviewed included contractor equipment yards, parking lots/malls, animal feeding activities, recreation/surface water, road right-of-way (major routes only) and lots/malls, animal feeding activities, recreation/surface water, road right-of-way (major routes only) and a variety of businesses (dry cleaners, furniture repair, electrical power supply manufacturing, photo processing/printing, and auto repair).

Constituents of concern in ground water, based on the possible contaminating activities, could include mineral salts (including nitrate), inorganic compounds (metals), organic wastewater compounds (emerging contaminants), pesticides and herbicides, service station products, and various solvents. The constituents of analysis for the Task 3 characterization study were presented for review in the Task 3 characterization study were presented for review in the Task 3 water Sampling Plan (Cleath & Associates, 2006) and are summarized below.



## General water quality parameters

- General minerals suite
- General physical parameters
- Inorganic suite (metals)
- Total Organic Carbon (TOC)

## Solvents, service station products, PCB's

- Volatile Organic Compounds (with MIBK, Acrolein, Acrylonitrile, and Oxygenates)
- Semi-Volatile Organic Compounds
- Ethylene Glycol
- 1,2,3-Trichloropropane

## Herbicides, pesticides

- Semi-Volatile Organic Compounds
- Carbamates suite
- Chlorinated herbicides suite
- Diquat
- **Endothall**
- Glyphosate
- Pesticides suite

## **Emerging contaminants**

- **NDMA**
- 1,4-Dioxane
- Pharmaceuticals/Personal Care Products (PPCP) suite
- Steroids/Hormones suite

Most of the analytical work was performed by Calscience Environmental Laboratories, Inc (Garden Grove) and Fruit Growers Laboratory (Santa Paula), both full-service, nationally accredited laboratories. The PPCP and Steroids/Homones suites were analyzed by the University Hygienic Laboratory (Iowa City, Iowa), a state-owned facility with experienced staff and highly sensitive equipment.



#### SAMPLING LOCATIONS

Three separate objectives were met with respect to upper aquifer water sampling locations:

- locations included aquifer zones targeted for potential community supply.
- locations included nitrate-impacted areas and worst-case water quality.
- locations included diverse depths to water and sampling intervals.

These objectives support the purpose of Task 3 mentioned previously, which is to characterize upper aquifer water quality so that the potential monitoring and treatment requirements for future domestic use of this resource can be anticipated. The future monitoring requirements would follow from the analysis of the worst-case water quality, while treatment requirements would follow from the quality of the actual aquifer zones tapped by supply wells. The third objective, sampling at locations with diverse depths to water and at diverse sampling intervals, is intended to provide data for contaminant fate and transport evaluations.

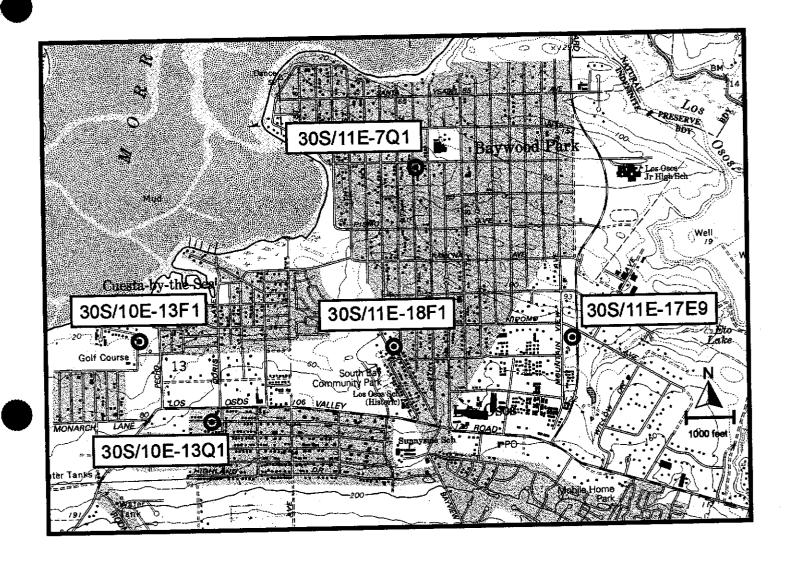
Overall worst-case water quality in the upper aquifer is assumed to reside near the top of the aquifer, closer to the sources of contamination. Future community supply wells would avoid the shallowest water bearing zones, however, and would tap the deeper zones where greater dilution and filtration of contaminants was possible. A total of five ground water wells were sampled during Task 3 activities (Figure 1). These locations and the rationale for selection are as follows:

#### 30S/10E-13F1

Well 13F1 is an inactive community water supply well on the west side of the basin that was taken out of service in 1996 due to elevated nitrate concentrations. This well is equipped and operational but not in use. Sampling at this location meets the objective of characterizing future community supply source water for the upper aquifer. Well 13F1 taps the bottom portion of the upper aquifer in an area of shallow water levels. Nitrate as nitrogen concentrations were measured at 20 mg/l in water samples collected from this well in August 2002.

#### 30S/10E-13Q1

Well 13Q1 is a nitrate monitoring program well on the west side of the basin that has consistently shown elevated nitrate concentrations in excess of the drinking water standard, and has averaged 20 mg/l nitrate as nitrogen over the last few years. The original 13Q1 monitoring well constructed in 1982 by Brown & Caldwell was replaced in 2002. During the replacement operation, the borehole was deepened from 100 to 105 feet and a new casing installed with an annular seal placed from ground surface to 80 feet depth. Sampling at this location tests water quality at the top of the upper aquifer in an impacted area with relatively deep water levels (83 feet depth).



Base map: USGS Topo, Могго Bay South Map Scale: 1 inch = 2,000 feet

Sampling location

Figure 1

Sampling Locations Task 3 Water Quality Characterization Los Osos CSD

Cleath & Associates



#### 30S/11E-7Q1

Well 7Q1 is an inactive community supply well that was taken out of service in 1977 due to elevated nitrate concentrations and now serves as a monitoring well. The well is 75 feet deep and taps the top portion of the upper aquifer in a residential area of Baywood Park where ground water is less than five feet deep. Nitrate concentrations have been close to 20 mg/l as nitrogen in recent years, and ammonia nitrogen has also been detected. Well 7Q1 should represent the overall worst-case water quality in the upper aquifer. A community supply well is also planned for this location, although it would tap a deeper portion of the upper aquifer (not the potentially worst-case water quality zone).

#### 30S/11E-17E9

Well 17E9 is a monitoring well that taps the bottom portion of the upper aquifer (184-194 feet depth). The nitrate concentration in ground water at 17E9 was checked prior to the Task 3 characterization study and measured 13 mg/l as nitrogen. This well was selected for Task 3 sampling because it taps a zone of the upper aquifer targeted for development under the CIEDB program. Depth to water is close to 85 feet.

#### 30S/11E-18F1

Well 18F1 is an inactive community supply well that was taken out of service in 1981 due to declines in specific capacity, possibly from sanding. This well was originally perforated in both the upper and lower aquifers. In May 2006, isolation of the upper aquifer was accomplished by sealing off the lower portion of the well. This well has also been selected for Task 3 sampling because it taps an upper aquifer zone targeted for development under the CIEDB program. Nitrate concentrations for the upper aquifer zone at this location were not available prior to the Task 3 sampling.

A summary of the sampling locations is presented below in Table 1. Assignment of sampling location to the various Task 3 objectives is presented in Table 2.



Location	Well Depth	Perforated Interval	Depth to Water <sup>1</sup>
	Der	oths in feet below top o	f casing
Solano/Butte	195	90-195	15
	105	95-105	83
	75	29-43, 54-75	3
	204	184-194	82
	280 <sup>2</sup>	183-231	95
	Location  Solano/Butte  Woodland/Doris  8th Street/El Moro  South Bay/Nipomo  Ferrell/7th	Solano/Butte 195 Woodland/Doris 105 8th Street/El Moro 75 South Bay/Nipomo 204	Depths in feet below top of Solano/Butte

<sup>1</sup>Measured on day of sampling, April 6, 2006 for all wells except 18F1 which was sampled on May 8, 2006. Notes:

<sup>2</sup>18F1 well depth originally 346 feet. Lower set of perforations sealed off prior to sampling.

Table 2 **Upper Aquifer Sampling Objectives** 

Well ID	Nitrate-Impacted area	Worst-Case water quality	Future Targeted Supply Aquifer	DTW/Sampling Zone
30S/10E-13F1	yes		yes	shallow/bottom
	-			deep/top
30S/10E-13Q1	yes			shallow/top
30S/11E-7Q1	yes	yes		deep/bottom
30S/11E-17E9	yes		yes	
30S/11E-18F1	no		yes	deep/bottom

 $\overline{DTW} = \overline{depth}$  to water

Sampling Zone indicates top or bottom portion of upper aquifer

Four of the five sample locations are in areas where the upper aquifer has been impacted by nitrates concentrations in excess of the drinking water standard. Sample location 30S/11E-7Q1 was expected to have the worst-case upper aquifer water quality. This shallow well is in an area of high ground water and has a long history of nitrate concentrations in excess of the drinking water standard, including detections of other of nitrogen compounds. Three of the wells are completed in existing or future aquifer zones specifically targeted for community supply. The well locations have both shallow and deep water levels and sampling intervals from both the top and bottom portions of the upper aquifer.



#### SAMPLING PROCEDURES

All five wells were purged prior to sampling. The Los Osos Community Services District sampling pump was used for wells 13Q1, 7Q1, and 17E9. Temperature, conductivity, and pH were monitored in accordance with the procedures included in Appendix A for these three wells. The sampling pump was decontaminated prior to the first use and between each unequipped well. Decontamination consisted of brushing the pump body, inlet screen, and power cable in a phosphate-free cleaning solution, followed by rinsing in distilled water, pumping distilled water, and a final distilled water rinsing. A new teflon-lined polyethylene discharge hose was used at each sample location, along with a clean tarp to avoid contact between the sampling equipment and ground surface. Purging at the two remaining wells (13F1 and 18F1) consisted of running their respective submersible pumps to remove a minimum of three well volumes prior to sampling (field logs of sampling attached in Appendix B).

Sample containers were obtained from the analytical laboratories for the specific constituents of analysis. Personnel collecting the samples used both talc-free latex gloves and nitrile gloves (depending on the type of sample being collected), eliminated head space and air entrapment in vials filled for volatile organic compounds analysis, prevented spillage of sample preservatives, and observed special precautions for the emerging contaminant sampling as directed by the testing laboratory.

Use of the sampling pump proceeded from the anticipated least contaminated to the most contaminated well (17E9, 13Q1, and 7Q1, respectively). Wells 13F1 and 18F1 had dedicated downhole pumps. For quality control purposes, two equipment blanks were collected for emerging contaminant analysis. The first equipment blank was drawn prior to sampling at the first well, and the second prior to sampling the last well. The equipment blanks consisted of distilled water which has been pumped through the sampling pump and discharge hose. A third blank for emerging contaminants analysis was collected directly from the distilled water container.

All samples were labeled and shipped on ice with chain-of-custody documentation to the receiving laboratories. Sampling and shipping times were coordinated to ensure receipt of samples by laboratory as soon as possible following sampling.

#### ANALYTICAL RESULTS

The results of the testing are summarized in below in Tables 3 through 6 and are grouped according to the broad categories identified during Task 3 work plan preparations. These categories include general water quality parameters (Table 3), solvents, service station products, and PCB's (Table 4), herbicides and pesticides (Table 5), and emerging contaminants (Table 6). Explanatory notes follow Table 6. Laboratory reports with results of the Task 3 water samples are included in Appendix C. Samples from wells 13F1, 13Q1, 7Q1, and 17E9 were collected on April 6, 2006. Samples from well 18F1 were collected on May 8, 2006.

Table 3 - General Water Quality Parameters

ANALYTE         R.L.         UNITS         MCL         NL/RL         RESULTS           Gen Min, Phys, Inorganic         Specific Conductance         1         μmhos/cm         1600         600         760         790         510         200           Hardness, Total         2         mg/L         -         150         180         200         150         44           Color         1         units         15         20         5         5         5         NI           pH         0.01         pH units         -         6.3         6.07         6.08         6.37         6.4           Odor         1         TON         3         ND         ND         ND         ND         ND	0 3 3 3 9
Specific Conductance       1       μmhos/cm       1600       600       760       790       510       200         Hardness, Total       2       mg/L       —       150       180       200       150       40         Color       1       units       15       20       5       5       5       NI         pH       0.01       pH units       —       6.3       6.07       6.08       6.37       6.4         pH       0.01       pH units       —       NID       NID <th>0 3 3 3 9</th>	0 3 3 3 9
Hardness, Total 2 mg/L - 150 180 200 150 44  Color 1 units 15 20 5 5 5 NI  pH 0.01 pH units - 6.3 6.07 6.08 6.37 6.44	) 3 ) 3 9
Color 1 units 15 20 5 5 5 NI pH 0.01 pH units - 6.3 6.07 6.08 6.37 6.4.	3 O 3 9
pH 0.01 pH units 6.3 6.07 6.08 6.37 6.4	) 3 9
THE THE PERSON OF THE PERSON NEW YORK AND NE	3 9
	9
Odor 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Turbidity 0.1 NTU 3 43 2.0 4.5 0.20 1.1 Langlier Saturation Index 0.01 index1.96 -2.37 -2.24 -2.01 -2.	<
Solids, Total Dissolved 1 mg/L 1000 354 454 432 302 14	J
Total Organic Carbon 0.5 mg/l ND	)
Total Alkalinity (as CaCO3) 1 mg/L - 92 60 76 88 2	8
Chloride 1 mg/L 500 61 130 120 64 2	6
Fluoride 1 mg/l 2 0.2 0.11 ND ND NI	)
Nitrate (as N) 0.1 mg/L 10 19 18 18 12	5
Nitrite (as N) 0.1 mg/L 1 ND	D
Sulfate 1 mg/L 500 33 29 44 19 4.	
Cyanide Total 0.05 mg/L 0.15 ND ND ND ND ND ND	
Surfactants 0.1 mg/L 0.5 ND ND ND ND ND ND	
Aluminum 0.05 mg/L 1 0.235 0.102 ND ND 0.05	
Antimony 0.015 mg/L 0.006 ND ND ND ND N	
Arsenic 0.01 mg/L 0.05 ND ND ND ND N	
Barium 0.01 mg/L 1 0.0462 0.0439 0.0522 0.111 0.03	
Beryllium 0.001 mg/L 0.004 ND ND ND ND N	
Boron 0.02 mg/L 1/10 0.0524 0.113 0.166 0.051 0.02	
Cadmium 0.005 mg/L 0.005 ND ND ND ND N	
Calcium 0.1 mg/L - 30.1 32.7 34.7 23.9 7.6	
Chromium 0.005 mg/L 0.05 0.0103 ND ND ND 0.00	
Cobalt 0.005 mg/L - ND ND ND ND N	D
Copper 0.005 mg/L 1 0.0625 ND ND ND N	D
Iron 0.1 mg/L 0.3 ND ND 0.469 ND 0.10	
Lead 0.01 mg/L 0.013 (0.02)	D
Magnesium 0.1 mg/L - 23 26.9 31.3 26.8 6.3	
Manganese 0.005 mg/L 0.05 0.054 ND 0.721 ND 0.0	
Molybdenum 0.003 Ing/L	D
Nickel 0.005 mg/L 0.1 0.0083 0.0062 0.0081 ND N	D
Phosphorus, Total 0.1 ling/L	D
Potassium 0.5 mg/L 1.78 1.71 4.66 1.53 0.8	
Selenium 0.015 ling/L 0.05	D
Silver 0.003 lig/L 0.1	D
Sodium 0.3 ingr	),1
Thallium 0.013 mg/L 0.002	ID ID
In 0.05 mg/L	ID ID
Vanadium 0.003 ingl. 0.0070.0	ID
Zinc 0.01 mg/L 5 0.048 0.0575 0.0372 0.051 0.1	
Mercury 0.0005 mg/L 0.002 ND ND ND ND N	Ð

Table 4 - Solvents, Service Station Products, PCB's

ANALYTE	R.L.	UNITS	MCL	NL/RL		RE	SULTS	3	
Volatile Organic Compounds					13F1	13Q1	7Q1	17E9	18F1
1,1,1-Trichloroethane	0.5	μg/L	200		ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.5	μg/L	1		ND	ND	ND	ND	ND
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.5	μg/L	1200		ND	ND	ND	ND	ND
1,1,2-Trichloroethane	0.5	μg/L	5		ND	ND	ND	ND	ND
1,1-Dichloroethane	0.5	μg/L	5		ND	ND	ND	ND	ND
1,1-Dichloroethene	0.5	μg/L	6		ND	ND	ND	ND	ND
1,1-Dichloropropene	0.5	μg/L			ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	0.5	μg/L			ND	ND	ND	ND	ND
1,2,3-Trichloropropane	0.005	μg/L		0.005/0.5	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	0.5	μg/L	5		ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	0.5	μg/L		330/3300	ND	ND	ND	ND	ND
1,2-Dibromo-3-Chloropropane	2	μg/L			ND	ND	ND	ND	ND
1,2-Dibromoethane	0.5	μg/L			ND	ND	ND	ND	ND
1,2-Dichlorobenzene	0.5	μg/L	600		ND	ND	ND	ND	ND
1,2-Dichlorobenzene-d4	0.5	μg/L			ND	ND	ND	ND	ND
1,2-Dichloroethane	0.5	μg/L	0.5		ND	ND	ND	ND	ND
1,2-Dichloropropane	0.5	μg/L	5		ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	0.5	μg/L			ND	ND	ND	ND	ND
1,3-Dichlorobenzene	0.5	μg/L			ND	ND	ND	ND	ND
1,3-Dichloropropane	0.5	μg/L			ND	ND	ND	ND	ND
1,4-Dichlorobenzene	0.5	μg/L	5		ND	ND	ND	ND	ND
2,2-Dichloropropane	0.5	μg/L			ND	ND	ND	ND	ND
2-Butanone	2	μg/L			ND	ND	ND	ND	ND
2-Chlorotoluene	0.5	μg/L		140/1400	ND	ND	ND	ND	ND
2-Hexanone	5	μg/L			ND	ND	ND	ND	ND
4-Chlorotoluene	0.5	μg/L		140/1400	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone (MIBK)	5	μg/L		120/1200	ND	ND	ND	ND	ND
Acetone	10	μg/L			ND	ND	ND	ND	ND
Acrolein	2	μg/L			ND	ND	ND	ND	ND
Acrylonitrile	2	μg/L			ND	ND	ND	ND	ND
Allyl Chloride	0.5	μg/L			ND	ND	ND	ND	ND
	0.5	μg/L	1		ND	ND	ND	ND	ND
	0.5	μ <b>g/</b> L			ND	ND	ND	ND	ND
	0.5	μg/L			ND	ND	ND	ND	ND
	0.5	μg/L			ND	ND	ND	ND	ND
	0.5	μg/L			ND	ND	ND	ND	ND
Bromomethane	0.5	μg/L			ND	ND	ND	ND	ND
Carbon Disulfide	0.5	μg/L		160/1600	ND	ND	ND	ND	ND
	0.5	μg/L	0.5		ND	ND	ND	ND	ND
Chlorobenzene	0.5	μg/L			ND	ND	ND	ND	ND
	0.5	μg/L			ND	ND	ND	ND	ND
	0.5	μg/L			ND	ND	ND	ND	ND
	0.5	μg/L			ND	ND	ND	ND	ND
Dibromochloromethane	0.5	μg/L			ND	ND	ND	ND	ND

Table 4 - Solvents, Service Station Products, PCB's (Continued)

ANALYTE	R.L.	UNITS	MCL	NL/RL	`	R	ESULT	S	
Volatile Organic Compounds					13F1	13Q1	7Q1	17E9	18 <b>F</b> 1
Dibromomethane	0.5	μg/L			ND	ND	ND	ND	ND
Dichlorodifluoromethane	0.5	μg/L		1000/10000	ND	ND	ND	ND	ND
Diethyl Ether	0.5	μg/L			ND	ND	ND	ND	ND
<u>-</u>	50	μg/L			ND	ND	ND	ND	62
Ethanol  Ethanol  Atthornulate	0.5	μg/L μg/L			ND	ND	ND	ND	ND
Ethyl Methacrylate	0.5	μg/L	300		ND	ND	ND	ND	ND
Ethylbenzene Hexachloro-1,3-Butadiene	0.5	μg/L μg/L			ND	ND	ND	ND	ND
Iodomethane	0.5	μg/L			ND	ND	ND	ND	ND
Isopropylbenzene	0.5	μg/L		770/7700	ND	ND	ND	ND	ND
Methyl Methacrylate	5	μg/L			ND	ND	ND	ND	ND
•	2	μg/L			ND	ND	ND	ND	ND
Methylene Chloride	0.5	μg/L		17/170	ND	ND	ND	ND	ND
Naphthalene	0.5	μg/L μg/L	100	2	ND	ND	ND	ND	ND
Styrene	0.5	μg/L μg/L	5		0.73	ND	ND	ND	ND
Tetrachloroethene	0.5	μg/L μg/L	150		ND	ND	ND	ND	1.5
Toluene	0.5	μg/L μg/L	10		ND	ND	ND	ND	ND
t-1,2-Dichloroethene	0.5	μg/L μg/L	5		ND	ND	ND	ND	ND
Trichloroethene	0.5	μg/L μg/L	150		ND	ND	ND	ND	ND
Trichlorofluoromethane	0.5		0.5		ND	ND	ND	ND	ND
Vinyl Chloride	0.5	μg/L	0.5		ND	ND	ND	ND	ND
c-1,3-Dichloropropene		μg/L σ/1	6		ND	ND	ND	ND	ND
c-1,2-Dichloroethene	0.5	μg/L	Ū	260/2600	ND	ND	ND	ND	ND
n-Butyibenzene	0.5	μg/L		260/2600	ND	ND	ND	ND	ND
n-Propylbenzene	0.5	μg/L	1750	200/2000	ND	ND	ND	ND	ND
o-Xylene	0.5	μg/L	1730		ND	ND	ND	ND	ND
p-Isopropyltoluene	0.5	μg/L		260/2600	ND	ND	ND	ND	ND
sec-Butylbenzene	0.5	μg/L		200/2000	ND	ND	ND	ND	ND
t-1,3-Dichloropropene	0.5	μg/L		260/2600	ND	ND	ND	ND	ND
tert-Butylbenzene	0.5	μg/L		200/2000	ND		ND	ND	ND
t-1,4-Dichloro-2-Butene	0.5	μg/L ~	1450		ND		ND	ND	ND
p,m-Xylene	0.5	μg/L	1750		ND	ND	ND	ND	ND
Methyl-t-Butyl Ether (MTBE)	0.5	μg/L	13		ND		ND	ND	ND
Tetrahydrofuran	5	μg/L		12/1200	ND				ND
Tert-Butyl Alcohol (TBA)	10	μg/L		12/1200	ND				ND
Diisopropyl Ether (DIPE)	2	μg/L ~			ND				
Ethyl-t-Butyl Ether (ETBE)	2	μg/L ~			ND				
Tert-Amyl-Methyl Ether (TAMI		μg/L			ND	ND	ND	142	112
Semi-Volatile Organic Compo		_			NID	ND	ND	ND	ND
Benzo(a)pyrene	0.1	μg/L	0.2		ND				
bis(2-Ethylhexyl)adipate	1	μ <b>g</b> /L	400		ND				
bis(2-Ethylhexyl)phthalate	3	μg/L -	4		ND				
1,2-Dibromoethane (EDB)	0.02	μg/L	0.05		ND	ND	ND	ND	ND
Other					* ***	1 TT's	\ \NT'	ND	ND
Ethylene Glycol	1	mg/L		14/140	ND				
PCB's (7 forms of PCB tested)	0.5	μg/L			ND	ND	ND	ND	ND

Tahle	5 -	Herbicides	and	<b>Pesticides</b>
Table	<b>5</b> -	Herbiciaes	and	resticiues

ANALYTE	R.L.	UNITS	MCL	NL/RL		. 1	RESULTS	}	
Semi-Volatile Organic Compounds					13F1	13Q1	7 <b>Q</b> 1	17E9	18F1
Atrazine	1	μg/L	1		ND	ND	ND	ND	ND
Bromacil	2	μg/L			ND	ND	ND	ND	ND
Butachlor	1	μg/L			ND	ND	ND	ND	ND
Diazinon	2	μg/L			ND	ND	ND	ND	ND
Dimethoate	2	μg/L			ND	ND	ND	ND	ND
Metolachlor	1	μg/L			ND	ND	ND	ND	ND
Metribuzin	0.5	μg/L			ND	ND	ND	ND	ND
Molinate	2	μg/L	20		ND	ND	ND	ND	ND
Prometryne	2	μg/L			ND	ND	ND	ND	ND
Propachlor	1	μg/L			ND	ND	ND	ND	ND
Simazine	1	μg/L	4		ND	ND	ND	ND	ND
Thiobencarb	1	μg/L	70		ND	ND	ND	ND	ND
Carbamates		, ,							
Aldicarb	3	μg/L			ND	ND	ND	ND	ND
Aldicarb Sulfone	2	μg/L			ND	ND	ND	ND	ND
Aldicarb Sulfoxide	3	μg/L			ND	ND	ND	ND	ND
Carbaryl	5	μg/L			ND	ND	ND	ND	ND
Carbofuran	5	μg/L	18		ND	ND	ND	ND	ND
3-Hydroxycarbofuran	10	μg/L			ND	ND	ND	ND	ND
Methomyl	5	μg/L			ND	ND	ND	ND	ND
Oxamyl	5	μg/L	50		ND	ND	ND	ND	ND
Chlorinated Herbicides		,-0-							
Bentazon	2	μg/L	18		ND	ND	ND	ND	ND
2,4-D (DCAA)	2	μg/L	70		ND	ND	ND	ND	ND
Dalapon	10	μg/L	200		ND	ND	ND	ND	ND
Dicamba	1	μg/L			ND	ND	ND	ND	ND
Dinoseb	1	μg/L	7		ND	ND	ND	ND	ND
Pentachlorophenol	0.2	μg/L	1		ND	ND	ND	ND	ND
Picloram	1	μg/L	500		ND	ND	ND	ND	ND
2,4,5-TP (Silvex)	1	μg/L	50		ND	ND	ND	ND	ND
2,4,5-T	1	μg/L			ND	ND	ND	ND	ND
Other									
Alachlor	0.2	μg/L	2		ND	ND	ND	ND	ND
Aldrin	0.01	μg/L			ND	ND	ND	ND	ND
Diquat	2	μg/L	20		ND	ND	ND	ND	ND
Dieldrin	0.01	μ <b>g/L</b>			ND	ND	ND	ND	ND
Endrin	0.01	μg/L	2		ND	ND	ND	ND	ND
Endothall	10	μ <b>g</b> /L	100		ND	ND	ND	ND	ND
Formaldehyde	0.2	mg/L		0.1/1	(0.25)	ND	(0.22)	ND	ND
Glyphosate	20	μg/L	700		ND	ND	ND	ND	ND
Heptachlor	0.01	μg/L	0.01		ND	ND	ND	ND	ND
Heptachlor Epoxide	0.01	μ <b>g</b> /L	0.01		ND		ND	ND	ND
Hexachlorobenzene	0.01	μg/L	1		ND		ND	ND	ND
Hexachlorocyclopentadiene	0.1	μg/L	50		ND		ND	ND	ND
Lindane	0.05	μg/L	0.2		ND		ND	ND	ND
Methoxychlor	0.1	μg/L	30		ND	ND		ND	
1,2-Dibromo-3-Chloropropane	0.02	μg/L	0.2		ND	ND	ND	ND	ND
-,		· <del>-</del>	1.0	1				Jun	a 14. 2006

Table 6 - Emerging Contaminants

ANALYTE	R.L.	UNITS	NL/RL				RESU	LTS			
ANALIE		-		В	LANKS	i	13 <b>F</b> 1	13Q1	7Q1	17E9	18 <b>F</b> 1
PPCPs				EQ#1	EQ#2	CW					
Acetominophen	5	ng/l		ND	ND	ND	ND	ND	ND	ND	ND
Caffein	16	ng/l		ND	ND	ND	ND	ND	ND	ND	ND
Carbamazepine	1 :	ng/l		ND	ND	ND	ND	26	31	98	ND
Cotinine	1	ng/l		ND	ND	ND	ND	ND	ND	ND	ND
1,7-Dimethylxanthine	1	ng/l		ND	ND	ND	ND	ND	ND	ND	ND
DEET	10	ng/l		ND	ND	ND	ND	ND	ND	ND	ND
Ibuprofen	7	ng/l		ND	ND	ND	ND	ND	ND	ND	ND
Lincomycin	2	ng/l		ND	ND	ND	ND	ND	ND	ND	ND
Sulfadimethoxine	2	ng/l		ND	ND	ND	ND	ND	ND	ND	ND
Sulfamethazine	1	ng/l		ND	ND	ND	ND	ND	ND	ND	ND
Sulfamethoxazole	1	ng/l		ND	ND	ND	115	300	92	250	1.5
Sulfathiazole	10	ng/l		ND	ND	ND	ND	ND	ND	ND	ND
Triclosan	1	ng/l		2.1	ND	ND	ND	ND	ND	ND	1.4
Trimetoprim	2	ng/l		ND	ND	ND	ND	ND	ND	ND	ND
Tylosin	2	ng/l		ND	ND	ND	ND	ND	ND	ND	ND
Hormones & Steroids									<b>.</b>	NTS.	ND
Testosterone	1000	ng/l		ND	ND	ND	ND				
Equilenin	50	ng/l		ND	ND	ND	ND				
Estriol	200	ng/i		ND	ND	ND	ND	ND			
Progesterone	1000	-		ND	ND	ND					
Coprostan-3-ol	100	ng/l		ND	ND	ND					
Cholesterol	50	ng/l		430	420	600					
Dihydrocholesterol	100	ng/l		ND	ND	ND					
Stigmasterol	100	ng/l		ND	ND	230					
Sitosterol	100	ng/l		100	ND	1600					
Stigmastanol	100	ng/l		ND	ND	ND	ND	ND	ND	ND	ND
Other			_				* 14.	<u></u>	ND	ND	ND
1,4-Dioxane	2	μg/L	3/300		-						
N-Nitrosodimethylamine (NDMA)	2	ng/L	10/200	) n:	a na	na	ND	(12)	(17)	NL	ND

#### **Table Notes**

R.L. = reporting limit

MCL = Maximum Contaminant Level

NL/RL = Notification Level (customer notification required)/ Response Level (source removal recommended) µmhos/cm = micromhos per centimeter

mg/L = milligrams per liter

μg/L = micrograms per liter

ng/L = nanograms per liter

EQ#1 = Equipment Blank #1

EQ#2 = Equipment Blank #2

CW = Clean Water (distilled water)

Results exceeding MCL or RL are bolded with shaded background Results exceeding NL are bolded and in parentheses



## **General Water Quality Parameters**

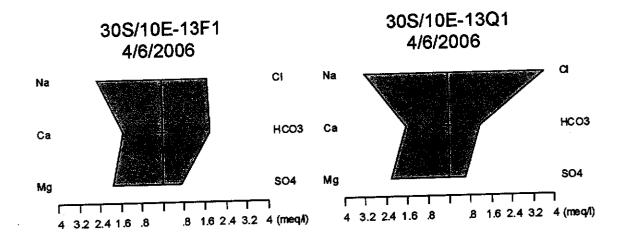
The results in Table 3 characterize general water quality parameters. Upper aquifer water in the Los Osos ground water basin is typically sodium-magnesium chloride-bicarbonate in character. Figure 2 presents Stiff diagrams for the Task 3 group of upper aquifer wells. These diagrams compare the proportions of the major cations (sodium, calcium, and magnesium) to the major anions (chloride, bicarbonate, and sulfate) in water. Besides confirmation of overall upper aquifer water character, the diagrams in Figure 2 also show variations attributable to specific depths and hydraulic conditions within the upper aquifer.

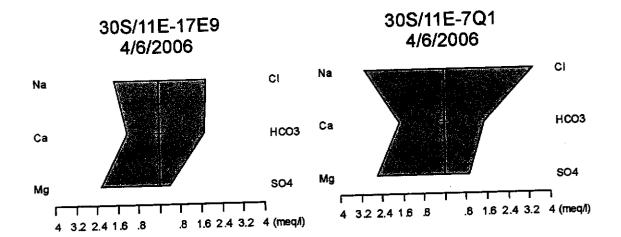
The Stiff diagrams for wells 13Q1 and 7Q1 have the greatest area, corresponding to the greatest total dissolved solids (TDS) concentration. There are notable increases in sodium and chloride compared to the water samples from the other Task 3 wells. Wells 13Q1 and 7Q1 have elevated nitrate as nitrogen (NO<sub>3</sub>-N) concentrations and tap the shallowest portion of the upper aquifer, where salt loading from wastewater return flows are expected to be most concentrated.

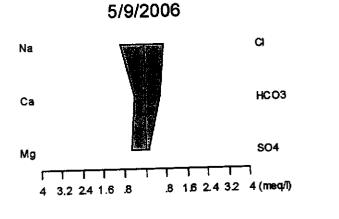
Wells 13F1 and 17E9 also have elevated nitrate concentrations, but tap deeper portions of the upper aquifer, where the water is slightly less mineralized. Well 18F1, by comparison, has the lowest TDS, and a nitrate concentration below the drinking water standard. This particular well was modified as part of Task 3 to tap the upper aquifer at one of the deepest locations in the basin. The water quality at 18F1 is very similar to water quality at well 30S/11E-18L7 (Palisades Avenue) and well 30S/11E-18K3 (Los Olivos Avenue), indicating that this low TDS zone is laterally extensive at the base of the upper aquifer in the downtown area.

Nitrate as nitrogen concentrations exceeded the Maximum Contaminant Level (MCL) for drinking water in four of the five Task 3 wells. MCLs are state drinking water standards listed in the California Code of Regulations, Title 22. Results for two of the wells reported other general water quality parameters in excess of the MCL. Ground water from well 13F1 had color, turbidity, and manganese in excess of the MCL, and lead was detected in excess of the action level. Well 13F1 is an inactive production well that has not been operated on a regular basis since 1996. The presence of excessive color, turbidity, and lead in the discharge water is interpreted to be due to incomplete redevelopment of the well prior to sampling, and not the actual condition of native ground water. Manganese was detected just above the MCL, and may also decline following well redevelopment.

Ground water from Well 7Q1 contained iron and manganese concentrations in excess of the MCL. Drinking water standards for iron and manganese are classified as secondary (not health-based) and relate to taste, odor, and potential discoloration (staining) on fixtures or laundry. Treatment for iron and manganese removal is common in local water systems, including Los Osos.







30S/11E-18F1

Figure 2
Stiff Diagrams
Task 3 Water Quality
Characterization
LOCSD

Cleath & Associates



#### Solvents, Service Station Products, and PCBs

Table 4 reports results for solvents, service station products, and polychlorinated biphenyls (PCBs). These compounds could be associated with various current or historical commercial land uses. A total of three compounds from this category were detected in water samples collected for Task 3.

Ethanol and Toluene were reported in water collected from well 18F1 at a levels very close to the laboratory reporting limits. Ethanol is used as component of fuel, distilled liquors, cleaning solutions, and solvents. There is no MCL for ethanol. Toluene is also used as a component of fuel, cleaning solutions, and solvents, with an MCL two orders of magnitude greater than the level reported in water collected from well 18F1.

Tetrachloroethene was reported in water collected from well 13F1 at a level very close to the laboratory reporting limit and below the MCL. Tetrachloroethene, also known as PCE, is widely used in dry cleaning and for metal degreasing. Well 13F1 is not located near any dry cleaners, metal fabricators, or auto repair shops.

No other compounds in the solvents, service station products, or PCBs category were reported. None of the reported levels exceeded applicable drinking water standards.

#### Herbicides and Pesticides

Table 5 reports results for herbicides and pesticides. Only one compound from this category, formaldehyde, was reported in water samples collected for Task 3. A formaldehyde concentration very close to the laboratory reporting was reported in water collected from wells 13F1 and 7Q1. The laboratory reporting limit in this case exceeded the consumer notification level, but results were below the response level where source removal is recommended. Formaldehyde is commonly used as a pesticide, preservative, or disinfectant, and in manufacturing.

#### **Emerging Contaminants**

Emerging contaminants generally refer to contaminants that are not commonly monitored but are potential health or environmental hazards. These contaminants may have been known for many years but have only recently been studied due to improvements in science and technology. The emerging contaminants investigated under Task 3 are listed in Table 6, and include pharmaceuticals and personal care products (PPCPs), hormones and steroids, and two compounds associated with domestic wastewater (1,4-dioxane and NDMA). Some of the compounds analyzed under Task 3 as emerging contaminants are not associated with health or environmental hazards but are part of the analytical suite performed by the laboratory.



Three compounds from the PPCP suite were reported in ground water samples (triclosan, sulfamethoxazole, and carbamazepine). Triclosan is an antibacterial chemical found in detergents, soaps, mouthwash, toothpaste, cosmetics, and many other products. Sulfamethoxazole is a human antibiotic that is commonly combined with another antibiotic, trimethoprim, and used to treat urinary infections. Carbamazepine is an anti-seizure drug use to treat a variety of physical and mental disorders.

Trace amounts of triclosan were reported in one of the equipment blanks and in ground water collected from well 18F1. Sulfamethoxazole was reported in all five ground water samples. Carbamazepine was reported in three of the five ground water samples (13Q1, 7Q1, and 17E9).

Three compounds from the hormones and steroids suite were reported in ground water samples, cholesterol, stigmasterol, and sitosterol. Cholesterol is an ubiquitous animal and plant sterol (a subclass of steroids) and a lipid present in body tissues and plant membranes. Stigmasterol and sitosterol are plant sterols that are included in some dietary supplements to reduce blood cholesterol levels. Cholesterol was reported in all five ground water samples and all three blanks. Stigmasterol was reported in water from well 13F1 and 17E9, and in the distilled water blank. Sitosterol was reported in water from all five wells and in two of the three blanks.

N-Nitrosodimethylamine (NDMA) was reported in ground water collected from wells 13Q1 and 7Q1 at levels exceeding the notification level but below the response level. NDMA is a byproduct of ion-exchange water treatment and chlorine, ozone, or chloramine disinfection.

#### DISCUSSION

Ground water samples were collected from five wells tapping the upper aquifer of the Los Osos ground water basin. Two of the five wells tested (13Q1 and 7Q1) tap the top portion of the upper aquifer and three wells (13F1, 17E9, and 18F1) tap the bottom portion being considered for community water supply development. Two hundred individual constituents were analyzed in each of the ground water samples collected, 74 of which are regulated by the State of California through primary and secondary drinking water standards, and 10 through action levels of notification and response.

The primary drinking water standard for nitrate was exceeded in the water samples for four of the five wells (well 18F1 was the exception). Secondary drinking water standards for iron and manganese were exceed in water collected from well 30S/11E-7Q1, and for manganese in water from well 30S/10E-13F1. Color and turbidity standards, and the lead action level were also exceeded in water from well 30S/10E-13F1, however, these are interpreted to be due to inactive facilities rather than aquifer contamination. Consumer notification levels for formaldehyde were exceeded in two wells (13F1 and 7Q1), and for NDMA in two wells (13Q1 and 7Q1). The formaldehyde detections were very close the laboratory reporting limits, and sampling using more sensitive analytical methods would be recommended in the future.

June 14, 2006

Wastewater influence on upper aquifer waters has historically been indicated by salt loading, including nitrate loading. Task 3 sampling also detected NDMA, sulfamethoxazole, and carbamazepine in water collected from multiple upper aquifer wells, which is interpreted to indicate wastewater influence. NDMA, a suspected carcinogen, was detected in water from the two wells that tap the shallowest upper aquifer zones (7Q1 and 13Q1), and was not reported in water from the deeper zones tested. Wells 7Q1 and 13Q1 also contained a greater level of salt loading. This is consistent with the assumption that the greatest wastewater influence would be expected at first water. The levels of NDMA detected in upper aquifer water were above the level at which customer notification is required, but below the response level at which source removal is recommended.

Sulfamethoxazole and carbamazepine are pharmaceuticals. The levels at which these compounds were detected are several orders of magnitude below human prescription levels, and they are indicators of wastewater influence. Concerns regarding the promotion of antimicrobial resistance for pathogenic microbial organisms has been expressed for increases in sulfanoamides (such as sulfamethoxazole) and other antimicrobial compounds in the environment. Carbamazepine, an anti-siezure drug, has been identified as a possible neuroteratogen, a compound that can affect neurological development in fetuses during pregnancy (Daughton, 2001).

A perspective on the PPCP and hormones/steroid results has been provided by Dr. John Vargo, the Environmental Health program manager for the University of Iowa Hygienic Laboratory where that portion of the Task 3 analyses were performed (Appendix D). Regarding the sulfamethoxazole and carbamazepine detections, Dr. Vargo writes, "Considering that these two chemicals are registered for use as human pharmaceuticals, it is unlikely they would present an adverse health risk at the levels they were detected." Dr. Vargo sums up his perspective as follows, "In my opinion, what has been found so far is not alarming but at the same time clearly indicates that some contamination of the water has occurred. Additional testing for other potential chemical contaminants should be considered if you have not already done so." Additional testing has been done, including the specific constituents listed by Dr. Vargo in his communication. Atrazine, carbon tetrachloride, 2,4-D, PCBs, and the polycyclic aromatic hydrocarbon benzo(a)pyrene were all tested for and not found. Task 3 has screened the upper aquifer for many potentially hazardous compounds, including suspected carcinogens (such as the volatile organic compounds) and endocrine disruptors (such as PCBs and pesticides).

With the exception of nitrate concentrations and iron and manganese concentrations locally, the constituents in upper aquifer ground water tested during Task 3 meet California State requirements for domestic use. Even after treatment for nitrate, iron and manganese removal or blending with lower aquifer water, however, use of the upper aquifer for a community drinking water supply is not without potential risks, based on the documented wastewater influence. The potential monitoring and treatment requirements for domestic use of upper aquifer water are not restricted to California Code of Regulations Title 22 constituents, but would include consideration of emerging contaminants such as NDMA, sulfamethoxazole and carbamazepine.



#### CONCLUSIONS

The following conclusions are based on the analytical results of Task 3 water quality characterization:

- Nitrate remains the primary regulated contaminant of concern in upper aquifer water, and is the only contaminant detected in excess of a primary (health-based) drinking water standards.
- With the exception of nitrate concentrations, and iron and manganese concentrations locally, the
  constituents in upper aquifer ground water tested during Task 3 meet California State
  requirements for domestic use. Color and turbidity concentrations measured in excess of
  secondary drinking water standards at one of the wells are interpreted to be related to inactive
  well facilities, and not the aquifer.
- Evidence of wastewater influence on upper aquifer water is not restricted to salt loading, and is indicated based on detections of NDMA and two PPCPs in multiple wells. NDMA was not reported in the deeper portions of the upper aquifer which are being considered for domestic use. The concentrations of NDMA in the top portion of the aquifer are above the consumer notification level, but below the response level at which discontinued use of the source is recommended by the State.
- Use of the upper aquifer for a community drinking water supply is not without potential risks, based on the documented wastewater influence. The monitoring and treatment requirements for domestic use of upper aquifer water may not be restricted to California Code of Regulations Title 22 constituents, but would include consideration of emerging contaminants such as NDMA, sulfamethoxazole and carbamazepine.

#### REFERENCES

- Cleath & Associates, 2001, Drinking Water Source Assessment and Protection (DWSAP) program appendices for LOCSD wells, May 2001.
- Cleath & Associates, 2005, Water Management Plan for the Los Osos Valley Ground Water Basin, July 2005 Draft.
- Cleath & Associates, 2006, Task 3 Water Sampling Plan for Upper Aquifer Water Quality Characterization, Los Osos Valley Ground Water Basin, March 9, 2006.
- Daughton, C.G., 2001, "Pharmaceuticals in the Environment: Overarching Issues and Overview," in <a href="Pharmaceuticals and Personal Care Products in the Environment: Scientific and Regulatory Issues">Pharmaceuticals and Personal Care Products in the Environment: Scientific and Regulatory Issues</a>, Daughton, C.G. and Jones-Lepp, T. (eds.), Symposium Series 791; American Chemical Society: Washington, D.C., 2001, pp. 2-38).



#### APPENDIX A

**Sampling Procedures** 



#### Sampling Procedures

Water sampling procedures for general mineral and nitrogen sampling are presented below. The purpose of the sampling procedures are to ensure that communication is established with the aquifer prior to sample collection.

#### Non-equipped monitoring wells:

- Calibrate field monitoring instruments each day prior to sampling. 24)
- Inspect wellhead condition and note any maintenance required (perform at earliest convenience). 25)
- Measure depth to static water (record to 0.01 inches) from surveyed reference point. 26)
- Install temporary pump to at least three feet below the water surface (deeper setting may be 27) needed if water level draw down is too great).
- Begin well purge, record flow rate. 28)
- Measure discharge water EC (measured to 10 µmhos/cm), pH (measured to 0.01 units), and temperature (measured to 0.1 degrees C) at regular intervals during well purging. Record time 29) and gallons purged. Note discharge water color, odor, and turbidity (visual).
- A minimum of three casing volumes of water should be removed during purging, or one borehole volume for small diameter monitoring wells\*. In addition, a set of at least three consecutive field 30) monitoring measurements with stable values should be recorded. For EC, stability within 5 percent of the first value in the set is sufficient (typically within 20-30 µmhos/cm). For pH, stability within 1 percent of the first value is sufficient (typically within 0.07 units). For temperature, stability within 1 percent of the first value is sufficient (typically within 0.2 degrees).
- Collect sample directly from discharge tube, note sample color, odor, turbidity (visual). Use only 31) laboratory-provided containers.
- Place samples on-ice for transport to the laboratory. 32)
- Remove temporary pump and rinse with clean water. 33)
- Close well and secure well box lid.
- \*note: If a well is pumped dry at the minimum pumping rate, the well may be allowed to recover and then sampled by bailer within 24 hours.

#### Equipped wells:

The sampling port for an equipped well must be upstream of any water filtration or chemical feeds. Sample from the discharge line as close to the wellhead as possible. Sampling procedures for equipped wells will vary, based on whether the well is active or inactive. For active wells (i.e. wells used daily), the need for purging three casing volumes is unnecessary. The well should be turned on for a nominal 5 minutes, and one set of EC, pH, and temperature readings collected prior to sampling. For inactive wells, a field monitoring procedure similar to that described above for unequipped wells would be appropriate. Static water level measurements should also be taken before sampling, if a sounder access port is available. Water samples should always be transported on-ice to the laboratory.



#### APPENDIX B

**Ground Water Monitoring Field Logs** 

## Ground Water Monitoring Field Log Los Osos Task 3 Monitoring

	F03 0000		•
Date:	4/7/2006	-	
Operator:	SJH/PH		
Well number and loc	ation:	30S/11E-13F1 Butte A Sunny, cool.	venue / Skyline Drive
Site and wellhead co	Site and wellhead conditions:		
Inactive community	supply well in cover	ed well house	
Static water depth (f	eet).	15.00	
Static water depth (feet):		190.00	
Well depth (feet): Water column (feet)	•	175.00	
Casing diameter (inc		14	
		4198	
Min purge Vol (gal): Pump rate (gpm):		50.00	
Pump setting (feet):			
Minimum purge time		83.96	
Time begin purge:	· (······/·	8:45 AM	

	,			Toma	Comments*
Time	Gailons	EC	рН	Temp.	
8:45 AM	<200				Slightly turbid, reddish brown, odorless
10:25 AM	5000				Clear, colorless, odorless
10:25 AM					begin sampling
10.23 AIVI					
	<del>                                     </del>				
	ļ				
		ļ			
				]	
- {	ļ	<u> </u>	<u> </u>	<u> </u>	

## Ground Water Monitoring Field Log Los Osos Task 3 Monitoring

Date: 4/7/2006 Operator: SJH/DRV Well number and location: Site and wellhead conditions: Casing below grade inside vault,	
Static water depth (feet): Well depth (feet): Water column (feet): Casing diameter (inches): Min purge Vol (gal): Pump rate (gpm): Pump setting (feet): Minimum purge time (min): Time begin purge:	83.00 104.50 21.50 2 36.00 2.83 102.00 12.72 1:05 PM

Time	Gallons	EC	рН	Temp.	Comments*
1:05 PM	<3	679	5.82	18.7	Turbid, light brown, odorless
1:14 PM	25	776	5.89	18.9	Clear, coloriess, odoriess
1:17 PM	35	743	5.93	18.7	Clear, colorless, odorless
1:23 PM		764	5.95	18.7	Clear, colorless, odorless
1:28 PM		747	5.99	18.8	Clear, colorless, odorless
1:30 PM					begin sampling
1.001		i			
	1				

# **Ground Water Monitoring Field Log**

Los Osos Task 3 Monitoring

4/7/2006 Date: SJH/DRW Operator:

30S/11E-7Q1 El Moro Avenue / 8th Street Well number and location:

Sunny, cool. Site and wellhead conditions:

Casing below grade inside vault, locking slip cap in place.

2.95 Static water depth (feet): 75.00 Well depth (feet): 72.05 Water column (feet): 8 Casing diameter (inches): 318.00 Min purge Vol (gal): 6.00 Pump rate (gpm): 70.00 Pump setting (feet):

53.00 Minimum purge time (min): 3:00 PM

Time begin purge:

	<del></del>	<del></del>			Commonts*
Time	Gallons	EC_	pН	Temp.	Comments*
3:00 PM	<1	637	6.64	20.2	Turbid, orange (rust), no odor
3:10 PM	60	610	6.73	21.5	Slightly turbid, orange (rust), no odor
3:20 PM	120	630	6.62	21.2	Slightly turbid, orange (rust), no odor
3:30 PM		647	6.42	20.8	Very slightly turbid, orange, no odor
3:40 PM		525	6.36	19.9	Very slightly turbid, orange, no odor
3:45 PM		525	6.27	20.1	Very slightly turbid, orange, no odor
3:50 PM		558	6.24	20.0	Very slightly turbid, orange, no odor
	<del>                                     </del>	588	6.21	20.0	Very slightly turbid, orange, no odor
3:55 PM		499	6.24	20.0	Very slightly turbid, orange, no odor
4:00 PM		410	6.17	20.1	Clear, colorless, odorless
4:15 PM		416	6.13	20.1	Clear, colorless, odorless
4:30 PM			6.18	20.0	Clear, colorless, odorless
4:40 PM		410	0.10	20.0	begin sampling
4:40 PM	<u>                                     </u>	<u>}</u>	<u> </u>	<u> </u>	

## Ground Water Monitoring Field Log Los Osos Task 3 Monitoring

 Date:
 4/7/2006

 Operator:
 SJH/DRW

Well number and location: 30S/11E-17E9 South Bay Blvd / Nipomo Ave

Site and wellhead conditions: Sunny, cool.

Casing above grade inside monument, locking cover, slip cap in place.

82.12 Static water depth (feet): 204.00 Well depth (feet): 121.88 Water column (feet): 2 Casing diameter (inches): 123.00 Min purge Vol (gal): 2.90 Pump rate (gpm): 149.00 Pump setting (feet): 42.41 Minimum purge time (min): 9:30 AM Time begin purge:

Time	Gallons	EC	Hq	Temp.	Comments*
9:30 AM	<1	448	6.09	20.8	Clear, colorless, odorless
9:39 AM	30	390	6.04	22.1	Clear, colorless, odorless
9:52 AM	60	462	6.10	23.3	Clear, colorless, odorless
10:02 AM	90	471	6.09	22.9	Clear, colorless, odorless
10:14 AM	120	479	6.16	22.2	Clear, colorless, odorless
10:21 AM		493	6.10	21.4	Clear, colorless, odorless
10:34 AM		507	6.19	20.4	Clear, colorless, odorless
10:45 AM		485	6.25	19.5	Clear, colorless, odorless
10:55 AM		475	6.25	20.7	Clear, colorless, odorless
11:05 AM		501	6.25	20.0	Clear, colorless, odorless
11:17 AM		485	6.29	19.4	Clear, colorless, odorless
11:29 AM	1	485	6.28	19.6	Clear, colorless, odorless
11:30 AM	<u> </u>	<u> </u>			begin sampling

## Ground Water Monitoring Field Log Los Osos Task 3 Monitoring

Date: Operator: Well number and loca Site and wellhead cor		30S/11E-18F1 Ferrell Avenue Sunny, cool.
Inactive community su	ipply well in fen	
Static water depth (fe Well depth (feet): Water column (feet): Casing diameter (incl Min purge Vol (gal): Pump rate (gpm):		95.00 280 (as modified) 185.00 10 2264.24 50.00
Pump setting (feet): Minimum purge time Time begin purge:	(min):	45.28 9:55 AM

		<u> </u>	-11	Temp.	Comments*
Time	Gailons	EC	рН	remp.	
10:00 AM	250				Slightly turbid, light brown, odorless
10:25 AM					Clear, coloriess, odoriess
3:00 PM	15250				begin sampling
	<del>                                     </del>				
<del></del>	<del> </del>				
		<u>.                                    </u>	<u> </u>		

#### APPENDIX C

#### **Laboratory Reports**

NOTE: To facilitate review, the laboratory reports have been rearranged and results for both sampling dates combined to follow the approximate sequence in the tables contained in the text of this report. Many pages of quality control/quality assurance (spike/recovery, duplicate and method blank reports) that do not have sample results are not included herein. The complete laboratory reports are available electronically.



#### **ANALYTICAL REPORT**

Cleath & Associates 1390 Oceanaire Drive San Luis Obispo, CA 93405-4920  Attn: Spencer Harris RE: WMP TASK 3	Date Sampled: Date Received: Date Analyzed: Work Order No.: Method: Page 1 of 1	04/06/06 04/07/06 04/07/06 06-04-0319 ASTMD 19
KE: MML INOV 2		

All concentrations are reported in mg/L (ppm).

Sample Number	Formaldehyde Concentration	Reporting <u>Limit</u>
30S/10E-13F1	0.25	0.20
30S/11E-17E9	ND	0.20
30S/10E-13Q1	ND	0.20
30S/11E-7Q1	0.22	0.20
Method Blank	ND	0.20



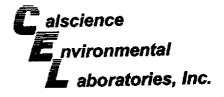


#### ANALYTICAL REPORT

Cleath & Associates	Date Sampled:	05/08/06
1390 Oceanaire Drive	Date Received:	05/09/06
San Luis Obispo, CA 93405-4920	Date Analyzed:	05/09/06
Attn: Spencer Harris RE: TASK 3 WATER QUALITY	Work Order No.: Method: Page 1 of 1	06-05-0545 ASTM D-19

All concentrations are reported in mg/L (ppm).

Sample Number	Formaldehyde <u>Concentration</u>	<u>Limit</u>		
30S/11E-18F1	ND	0.20		
Method Blank	ND	0.20		



#### **Analytical Report**

Cleath & Associates 1390 Oceanaire Drive San Luis Obispo, CA 93405-4920 Date Received: Work Order No:

04/07/06 06-04-0319

Project: WMP TASK 3

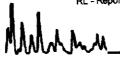
Page 1 of 3

lient Sample Number 30S/10E-13F1		06-04	4-0319-1	04/0	16/06 A	queous	<u> </u>	
tarameter  color cocific Conductance lardness, Total  odor  H  colids, Total Dissolved  furbidity  cluoride  chloride  ditrite (as N)  Nitrate (as N)  Sulfate  Cyanide, Total  Carbon, Total Organic	Result 20 600 150 ND 6.30 354 45 0.20 61 ND 19 33 ND ND	FL.  5 1.0 2 2.0 0.01 1.0 1.0 0.10 10 0.10 1 10 0.10 0.50	DE  1 1 1 1 1 1 1 1 1 10 1 10 1 1 1 1 1 1	Qual	Units  Color unit umhos/cn mg/L TON pH units mg/L NTU mg/L mg/L mg/L mg/L	N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A	Date Analyzed  04/07/06  04/07/06  04/11/06  04/07/06  04/07/06  04/07/06  04/08/06  04/08/06  04/08/06  04/08/06  04/08/06  04/18/06  04/18/06  04/18/06  04/18/06	Method  EPA 110.2 EPA 120.1 EPA 130.2 EPA 140.1 EPA 150.1 EPA 160.1 EPA 300.0
Surfactants Alkalinity, Total (as CaCO3)	ND 92	0.10 1.0	1		mg/L mg/L	n/a n/a	04/11/06	SM 2320B

Parameter .	Result	RL	<u>DE</u>	Qual	<u>Units</u>	Date Prepared	Date Analyzed	<u>Method</u>
Color Specific Conductance Hardness, Total Odor pH Solids, Total Dissolved Turbidity Fluoride Chloride Nitrite (as N) Nitrate (as N) Sulfate Cyanide, Total Carbon, Total Organic Surfactants Alkalinity, Total (as CaCO3)	5.0 510 150 ND 6.37 302 0.28 ND 64 ND 12 19 ND ND ND	5.0 1.0 2 2.0 0.01 1.0 0.050 0.10 1 1 0.10 0.50 0.10	1 1 1 1 1 1 1 10 10 10 10 1 1 1		Color unit umhos/cm mg/L TON pH units mg/L NTU mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A	04/07/06 04/07/06 04/11/06 04/07/06 04/07/06 04/07/06 04/08/06 04/08/06 04/08/06 04/08/06 04/16/06 04/09/06 04/07/06 04/1/06	EPA 110.2 EPA 120.1 EPA 130.2 EPA 140.1 EPA 150.1 EPA 160.1 EPA 300.0 EPA 300.0 EPA 300.0 EPA 305.2 EPA 415.1 EPA 425.1 SM 23208

DF - Dilution Factor ,

Qual - Qualifiers



30S/11E-17E9



#### **Analytical Report**

Cleath & Associates 1390 Oceanaire Drive San Luis Obispo, CA 93405-4920 Date Received: Work Order No:

04/07/06 06-04-0319

Page 2 of 3

		Lab Sar	mple Numb	er Dat Co <b>ll</b> et		atrix		
lient Sample Number		22.24	0040.3	04/06		eous		
30S/10E-13Q1		06-04	-0319-3	0-4/00				
Parameter	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>	Date Prepared	Date Analyzed	Method
<del>draines.</del>			1		Color unit	N/A	04/07/06	EPA 110.2
Color	5.0	5.0	1		umhos/cm	N/A	04/07/06	EPA 120.1
Specific Conductance	760	1.0	1		mg/L	N/A	04/11/06	EPA 130.2
lardness, Total	180	2	•		TÓN	N/A	04/07/06	EPA 140.1
Odor	ND	2.0	1		pH units	N/A	04/07/06	EPA 150.1
oH	6.07	0.01	1			N/A	04/10/06	EPA 160.1
Solids, Total Dissolved	454	1.0	1		mg/L	N/A	04/07/06	EPA 180.1
	2.6	0.10	1		NTU		04/08/06	EPA 300.0
Furbidity	0.11	0.10	1		mg/L	N/A	04/11/06	EPA 300.0
luoride	130	20	20		mg/L	N/A		EPA 300.0
Chloride	ND	0.10	1		mg/L	NA	04/08/06	EPA 300.0
Nitrite (as N)		1	10		mg/L	N/A	04/08/06	
Vitrate (as N)	18	10	10		mg/L	N/A	04/08/06	EPA 300.0
Sulfate	29		1		mg/L	04/16/06	04/16/06	EPA 335.2
Cyanide, Total	ďИ	0.10	i		mg/L	N/A	04/09/06	EPA 415.1
Carbon, Total Organic	ND	0.50	•		mg/L	N/A	04/07/06	EPA 425.1
Surfactants	ND	0.10	1		mg/L	N/A	04/11/06	SM 2320B
Alkalinity, Total (as CaCO3)	60	1.0	1		HARE	14.0		
			4 0040 E	048	06/06 Aq	Medals		
30S/11E-7Q1		06-0	4-0319-5					
December	Result	RL	<u>DF</u>	Quai	<u>Units</u>	Date Prepared	Date Analyzed	Method
<u>Parameter</u>					Color unit	N/A	04/07/06	EPA 110.2
Color	5.0	5.0	1				04/07/06	EPA 120.1
Specific Conductance	790	1.0	1		umhos/cm	N/A	04/11/06	EPA 130.2
	200	2	1		mg/L		04/07/06	EPA 140.1
Hardness, Total	ND	2.0	1		TON	N/A	04/07/06	EPA 150.1
Odor	6.08	0.01	1		pH units	N/A		EPA 160.1
pH	432	1.0	1		mg/L	N/A	04/10/06	EPA 180.1
Solids, Total Dissolved		0.10	1		NŤU	N/A	04/07/06	
Turbidity	4.3	0.10	i		mg/L	N/A	04/08/06	EPA 300.0
Fluoride	ND		20		mg/L	N/A	04/11/06	EPA 300.0
Chloride	120	20	1		mg/L	N/A	04/08/06	EPA 300.0
Nitrite (as N)	ND	0.10			mg/L	N/A	04/08/06	EPA 300.0
Nitrate (as N)	18	1	10		_	N/A	04/08/06	EPA 300.0
Sulfate	44	10	10		mg/L	04/16/06	04/16/06	EPA 335.2
AND LIGHTS	ND	0.10	1		mg/L	N/A	04/09/06	EPA 415.1
			4		222	1107	A 11 A 21 A 2	'
Cyanide, Total	ND	0.50	1		mg/L		ሰለ ለስን ለገዳ	EPA 425.1
Cyanide, Total Carbon, Total Organic		0.50 0.10	1		mg/L	N/A	04/07/06	EPA 425.1 SM 2320B
Cyanide, Total	ND ND 76		-				04/07/06 04/11/06	

# alscience nvironmental aboratories, Inc.

#### **Analytical Report**

Cleath & Associates 1390 Oceanaire Drive San Luis Obispo, CA 93405-4920 Date Received: Work Order No:

05/09/06 06-05-0545

Project: TASK 3 WATER QUALITY

Page 1 of 1

	Lab Sa	mple Num			latrix		
	06-05	-0545-1	05/0	8/06 Aq	LIBOUS		
· · · · · · · · · · · · · · · · · · ·							
d outside recomm	nended holding	time.		11.4	Data Duanand	Data Anakrad	Method
Result	<u>R</u> L	<u>DF</u>	Qual	<u>Units</u>	Date Prepared		
ND	50	1		Color unit	N/A		EPA 110.2
		-		umhos/cm	N/A		EPA 120.1
				ma/L	N/A		EPA 130.2
		1			N/A	05/09/06	EPA 140.1
		4				05/09/06	EPA 150.1
		4		E		05/11/06	EPA 160.1
		1					EPA 180.1
		1					EPA 300.0
ND		1		_			EPA 300.0
26	10			•			EPA 300.0
ND	0.10	1		-			EPA 300.0
	0.1	1		•			EPA 300.0
	1.0	1		mg/L			
		1		mg/L	• • • • • • • • • • • • • • • • • • • •		EPA 335.2
		i		mg/L	N/A		EPA 415.1
		i		mg/L	N/A		EPA 425.1
		-		-	N/A	05/10/06	SM 2320B
20	1.0	•					
			1	N/A A	queous		
			<del> </del>			<u> </u>	
Desuit	DI	DE	Qual	Units	Date Prepared	Date Analyzed	Method
Kesnik	135						
NE	20	1		mg/L	N/A		EPA 130.2
ND	1.0	1		mg/L	N/A	05/11/06	EPA 160.1
NU		i		mg/L	N/A	06/07/06	EPA 300.0
	Λ 4Λ				N/A	06/07/06	EPA 300.0
ND	0.10	4		ma/i	N/A	00/1/00	
ND ND	1.0	1		mg/L	•	06/07/06	EPA 300.0
ND ND ND	1.0 0.10	1		mg/L	NA	06/07/06	
ND ND ND ND	1.0 0.10 0.10	1 1		mg/L mg/L	N/A N/A	06/07/06 06/07/06	EPA 300.0 EPA 300.0
ND ND ND	1.0 0.10 0.10 1.0	1 1 1		rng/L mg/L mg/L	N/A N/A N/A	06/07/06 06/07/06 06/07/06	EPA 300.0 EPA 300.0 EPA 300.0
ND ND ND ND	1.0 0.10 0.10	1 1 1 1		mg/L mg/L mg/L mg/L	N/A N/A N/A 05/17/06	06/07/06 06/07/06 06/07/06 05/18/06	EPA 300.0 EPA 300.0 EPA 300.0 EPA 335.2
ND ND ND ND ND	1.0 0.10 0.10 1.0	1 1 1 1		rng/L mg/L mg/L	N/A N/A N/A	06/07/06 06/07/06 06/07/06	EPA 300.0 EPA 300.0 EPA 300.0
	Result  ND 200 40 ND 6.43 146 1.3 ND	ND   5.0   200   1.0   40   2   ND   2.0   6.43   0.01   1.46   1.0   1.3   0.10   ND   0.10   26   10   ND   0.10   5.0   0.1   4.6   1.0   ND   0.50   ND   0.50   ND   0.50   ND   0.10   28   1.0   Result   RL	1 outside recommended holding time.   Result   RL   DE       ND   5.0   1     200   1.0   1     40   2   1     ND   2.0   1     6.43   0.01   1     146   1.0   1     1.3   0.10   1     ND   0.10   1     26   10   10     ND   0.10   1     5.0   0.1   1     4.6   1.0   1     ND   0.50   1     ND   0.50   1     ND   0.10   1     28   1.0   1     Result   RL   DE	Collinaria   Col	Collected   M   O6-05-0545-1   O5/08/06   Aq   O5/08/06   O5/08/06	Collected   Matrix	Collected   Matrix

RL - Reporting Limit

DF - Dilution Factor

Qual - Qualifiers



#### **ANALYTICAL REPORT**

04/06/06 Date Sampled: Cleath & Associates 04/07/06 Date Received: 1390 Oceanaire Drive 04/11/06 Date Analyzed: San Luis Obispo, CA 93405-4920 06-04-0319 Work Order No.: Calculation Method: Attn: Spencer Harris Page 1 of 1 RE: WMP TASK 3

Sample Number	Langelier Saturation Index Concentration
30S/10E-13F1 30S/11E-17E9 30S/10E-13Q1	-1.96 -2.01
	-2.37 -2.24
30S/11F-7Q1	

05/08/06

05/09/06

05/10/06

06-05-0545

Calculation



#### **ANALYTICAL REPORT**

Cleath & Associates
1390 Oceanaire Drive
San Luis Obispo, CA 93405-4920
Date Received:
Date Analyzed:
Work Order No.:

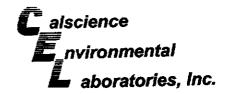
Attn: Spencer Harris Method:

RE: TASK 3 WATER QUALITY Page 1 of 1

Langelier Saturation Index

Sample Number Concentration

30S/10E-18F1 -2.90



#### **Analytical Report**

Cleath & Associates 1390 Oceanaire Drive San Luis Obispo, CA 93405-4920 Date Received: Work Order No: Preparation: Method: Units: 04/07/06 06-04-0319 EPA 3005A Filt. EPA 6010B mg/L

Project: WMP TASK 3

Page 1 of 3

Project: WMP TASK 3	<u> </u>			Sample	Date Collected	Matrix	Date Prepared		ate lyzed	QC Bate	ch ID
Client Sample Number			06-04-03		04/06/06	Aqueous	04/07/06	04	/10/06	060407l	_07
30S/10E-13F1							-		DI	DE	Qual
arameter	Result	<u>RL</u>	DΕ	Qual	<u>Parameter</u>		Res	<u>148</u> 0	<u>RL</u> 0.0100	<u>1</u>	- CANAMA
	0.0625	0.0050	1		Zinc		ND		0.0100	1	
opper	30.1	0.1	1		Iron			0538	0.0050	•	
alcium	23.0	0.1	1		Manganese		56.		0.5555	1	
lagnesium otassium	1.78	0.50	1		Sodium						
			06-04-03	319-2	04/06/06	Aqueous	04/07/06	04	/10/06	060407	L07
30S/11E-17E9						<u> </u>	Da	sult	RL	<u>DF</u>	Qual
la manadar	Result	RL.	<u>DF</u>	Qual	<u>Parameter</u>			.0505	0.0100	1	
'arameter	ND	0.00500	1		Zinc		_		0.0100	4	
Copper	23.9	0.1	1		iron		NE		0.00500	- ;	
Calcium	26.8	0.1	1		Manganese		NE			- 4	
/lagnesium	1.53	0.50	1		Sodium		38	.1	0.5		
Potassium	1.00	0.00	06-04-0	310-3	04/06/06	Aqueous	04/07/06	04	4/10/06	060407	L07
30S/10E-13Q1		<u> </u>	00-04-0	3,0-0						DF	Qual
	Result	RL	DE	Qual	<u>Parameter</u>		-	<u>sult</u>	<u>RL</u>	_	Qua
<u>Parameter</u>		0.00500	_		Zinc		-	,0575		1	
Copper	ND	0.00500	4		Iron		N	_	0.100	1	
Calcium	32.7	0.1	4		Manganese		Ni	_	0.00500	1	
Vlagnesium	26.9				Sodium		72	2.6	0.5	1	
Potassium	1.71	0.50		240 5	04/06/06	Aqueous	04/07/06	0	4/10/06	060407	7L07
30S/11E-7Q1			06-04-0	319-5	040000	Addoore					0
	Result	<u>RL</u>	DF	Qual	<u>Parameter</u>			<u>esult</u>	<u>RL</u>	DE	<u>Qual</u>
<u>Parameter</u>					Zinc			0.0372		1	
Copper	ND	0.00500	) 1		Iron			).469	0.100	1	
Calcium	34.7	0.1	1		Manganese		(	0.721	0.005	1	
Magnesium	31.3	0.1	3		Sodium	•	6	8.5	0.5	1	
Potassium	4.66	0.50	1		Socialii						

RL - Reporting Limit ,

DF - Dilution Factor ,

# alscience nvironmental aboratories, Inc.

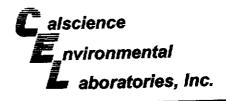
#### **Analytical Report**

Cleath & Associates 1390 Oceanaire Drive San Luis Obispo, CA 93405-4920 Date Received: Work Order No: Preparation: Method: Units: 05/09/06 06-05-0545 EPA 3005A Filt. EPA 6010B

mg/L Page 1 of 2

Project: TASK 3 WATER QUALITY

Client Sample Number				b Sample Number	Date Collected	Matrix	Date Prepared	Dat Analy		QC Ba	tch ID
30S/11E-18F1			06-05-0		05/08/06	Aqueous	05/09/06	05/1	0/06	060509	L03
Darameter	Result	RL	DE	Qual	Parameter		Res	sult	RL	DE	Qual
Parameter Cannor	ND	0.00500	1	—	Zinc				0.010	1	
Copper Calcium	7.67	0.10	1		lron				).100	1	
Magnesium	6.33	0.10	1		Manganese				0.0050	1	
Potassium	0.877	0.500	1		Sodium		20.	1 (	),5	1	



#### **Analytical Report**

Cleath & Associates 1390 Oceanaire Drive San Luis Obispo, CA 93405-4920 Date Received:

04/07/06

Work Order No:

06-04-0319

Preparation:

EPA 3010A Total / EPA 7470A Total

Method:

EPA 6010B / EPA 7470A

Units:

mg/L

Page 2 of 3

ate Ivzed (	30 Dat	
		ch ID
10/06 0	)60407L	_07
RL	DE	Qual
	1	
	1	
	1	
	1	
	1	
	•	
	-	
	-	
U.U15U	•	
V10/06 🐬	060407	L07
	DE	امريم
RL.		Qual
0.0150		
1 0.00500	1	
0.0500	1	
0.0500	1	
0.0200	1	
0.00500	1	
	1	
	1	
	1	
J.J 100	-	
	00040	71.07
4/10/06	UGU4U	/ LU/
RL	DE	Qual
0.0150	1	
	1	
	1	
	1	
	1	
*	-	
0.0150	,	
1	RL 0.0150 0.00500 0.0500 0.0500 0.00500 0.00500 0.00500 0.0150  RL 0.0150 0.00500 0.0500	RL DE 0.0150 1 0.00500 1 0.0500 1 0.0500 1 0.00500 1 0.00500 1 0.00500 1 0.00500 1 0.0150 1 0.00500 1

DF - Dilution Factor ,



### **Analytical Report**

Cleath & Associates 1390 Oceanaire Drive San Luis Obispo, CA 93405-4920 Date Received: Work Order No: 04/07/06

06-04-0319

Preparation:

EPA 3010A Total / EPA 7470A Total

Method:

EPA 6010B / EPA 7470A

Units:

mg/L

Project: WMP TASK 3

Page 3 of 3

Result	06 4:18:30	06-04-03		04/06/06	Aqueous	04/07/06	04/10/06	060407L	07
Result	06 4:18:30								
Result	06 4:18:30	PM with	hatch OGO						
Result			Daton 000	407L04		Resul	t RL	DE	Qual
<del>_</del>	<u>RL</u>	<u>DE</u>	WCKEE .	- Cartana - Cartana		ND.	0.0150	1	
ND	0.0150	1		Thallium		ND	0.00500	1	
ND	0.0100	1		Vanadium		ND	0.0500	1	
0.0522	0.0100	1				ND	0.0500	1	
ND	0.00100	1				0.10	66 0.020	1	
ND	0.00500	1				ND	0.00500	1	
ND	0.00500	1				ND		1	
ND	0.0100	1				0.0	0812 0.00500	1	
ND	0.00500	1				ND	0.0150	1	
ND	0.100	1		Selenium			·		
ND	0.00500	1_				- 4 12 12 0	04(07/08	060407	1.04
		099-04	-008-2,435	; N/A	Aqueous	04/01/06	0401700		
			- O l						
<u>Result</u>		_	<u>Qua</u>				_		
ND	0.000500	<u>) 1</u>				2 - 12 - 12 - 2	0.444.0/06	060407	1 07
		097-01	-003-5,994	4 N/A	Aqueous	04/07/06	04110/00	000101	
			0 -1	Decompler		Res	utt BL	DΕ	Qual
Result	RL.	DF	QUE			ND	0.00500	1	
ND	0.0150	1		•		ND	0.0500	1	
ND	0.0100	1		•		ND	0.0500	1	
ND	0.0100	1		•		ND	0.0200	1	
ND						ND		1	
ND	0.00500			Lead		ND		1	
ND	0.00500					ND	0.00500	) 1	
ND ND	0.00500			Nickel		ND ND	0.0150	1	
		1					0.0150	) 1 1 1	
	O.0522 ND	0.0522 0.0100 ND 0.00500 ND 0.00500 ND 0.0100 ND 0.00500 ND 0.100 ND 0.00500  Result RL ND 0.00500  Result RL ND 0.0150 ND 0.0100 ND 0.0100 ND 0.0100 ND 0.0100 ND 0.0100 ND 0.00100 ND 0.00100	0.0522 0.0100 1 ND 0.00100 1 ND 0.00500 1 ND 0.00500 1 ND 0.0100 1 ND 0.00500 1 ND 0.100 1 ND 0.00500 1 ND 0.00500 1  Result RL DE ND 0.00500 1  Result RL DE ND 0.0150 1 ND 0.0150 1 ND 0.0150 1 ND 0.0100 1 ND 0.0100 1 ND 0.0100 1	0.0522 0.0100 1 ND 0.00100 1 ND 0.00500 1 ND 0.00500 1 ND 0.00500 1 ND 0.00500 1 ND 0.100 1 ND 0.00500 1 ND 0.00500 1  Result RL DF Qual ND 0.00500 1  Result RL DE Qual ND 0.0150 1 ND 0.0150 1 ND 0.0150 1 ND 0.0100 1	0.0522 0.0100 1 Aluminum  ND 0.00100 1 Tin  ND 0.00500 1 Boron  ND 0.00500 1 Cobak  ND 0.0100 1 Mercury  ND 0.00500 1 Nickel  ND 0.100 1 Selenium  ND 0.00500 1   Result RL DE Qual  ND 0.00500 1  Result RL DE Qual  ND 0.0150 1 Vanadium  ND 0.0150 1 Vanadium  ND 0.0100 1 Aluminum  ND 0.0100 1 Boron  Cheenium  ND 0.0100 1 Boron  Cheenium	0.0522 0.0100 1 Aluminum  ND 0.00100 1 Tin  ND 0.00500 1 Boron  ND 0.00500 1 Cobalt  ND 0.0100 1 Mercury  ND 0.00500 1 Nickel  ND 0.00500 1	0.0522 0.0100 1 Aluminum ND ND 0.00100 1 Tin 0.16 ND 0.00500 1 Boron 0.16 ND 0.00500 1 Cobalt ND ND 0.0100 1 Mercury ND ND 0.00500 1 Nickel 0.0 ND 0.100 1 Selenium ND ND 0.00500 1    Result RL DF Qual	0.0522         0.0100         1         Aluminum         ND         0.0500           ND         0.00100         1         Tin         0.166         0.020           ND         0.00500         1         Boron         ND         0.00500           ND         0.00500         1         Cobalt         ND         0.00500           ND         0.0100         1         Mercury         ND         0.00812         0.00500           ND         0.100         1         Selenium         ND         0.0150           ND         0.00500         1         Selenium         ND         0.0150           ND         0.00500         1         Value         ND         0.0150           ND         0.00500         1         ND         0.007/06         04/07/06           Result         RL         DE         Qual         Parameter         ND         0.00500           ND         0.0150         1         Vanadium         ND         0.0500           ND         0.0100         1         Aluminum         ND         0.0500           ND         0.0100         1         Tin         ND         0.0200	ND   0.0500   1   Aluminum   ND   0.0500   1   ND   0.0500   1   ND   0.0500   1   ND   0.00500   1   ND

DF - Dilution Factor ,

# alscience nvironmental aboratories, Inc.

#### **Analytical Report**

Cleath & Associates 1390 Oceanaire Drive San Luis Obispo, CA 93405-4920 Date Received:

05/09/06

Work Order No:

06-05-0545

Preparation:

EPA 3010A Total / EPA 7470A Total

Method:

EPA 6010B / EPA 7470A

mg/L

Units:

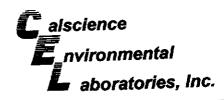
Page 2 of 2

Project:	TASK	3 \	NATER	R OUAI	LITY
Prolect.	IAON	JΙ	(4441	1 WUN	_,,,

Client Sample Number			_	b Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bato	sh ID
30S/11E-18F1		<del></del>	06-05-0	)545-1	05/08/06	Aqueous	05/09/06	05/10/06	0605091	.03
Comment(s): -Mercury was a	nalyzed on 5/10/200	06 3:28:14	PM with	h batch 06	0510L02		_	w 61	DC	Qual
Parameter	Result	RL	DF	Qual	<u>Parameter</u>		Res		<u>DF</u>	Andr
untimony	ND	0.0150	1		Thalfium		ND		1	
•	ND	0.0100	1		Vanadium		ND		1	
rsenic	0.0349	0.0100	1		Aluminum		0.	0580 0.0500	1	
larium	ND	0.00100	•		Tin		ND		1	
eryllium	ND	0.00500	4		Boron		0.	0243 0.0200	1	
admium	,	0.00500			Cobatt		ND	0.00500	1	
Chromium	ND	0.0100	4		Mercury		ND	0.000500	) 1	
ead			4		Nickel		ND	0.00500	1	
Aolybdenum	ND	0.00500	1		Selenium		ND	0.0150	1	
Phosphorus, Total	ND	0.100	1		COMMIN					
Silver	ND	0.00500						05140706	060510	מים
Method Blank			099-04	-008-2,47	2 NA	Aqueous	05/10/06	05/10/06	000010	LUZ
	Danill	DI	ne	Ousi						

Parameter Mercury	Result ND	0.000500	1	- Zna						
Method Blank			097-01	-003-6,10	2 N/A	Aqueous	05/09/06	05/10/06	060509	L03
Parameter Antimony Arsenic Barium Beryllium Cadmium Cobalt Molybdenum Phosphorus, Total Silver	Result ND	BL 0.0150 0.0100 0.0100 0.00100 0.00500 0.00500 0.00500 0.100 0.00500	DE 1 1 1 1 1 1 1 1 1	Qual	Parameter Vanadium Aluminum Tin Boron Chromium Lead Nickel Selenium Thaffium		Result ND ND ND ND ND ND ND	BL 0.00500 0.0500 0.0500 0.0200 0.00500 0.0100 0.0150 0.0150	DE 1 1 1 1 1 1 1 1 1 1	Qual

DF - Dilution Factor



## **Analytical Report**

Cleath & Associates 1390 Oceanaire Drive San Luis Obispo, CA 93405-4920 Date Received: Work Order No: Preparation: Method: Units:

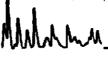
04/07/06 06-04-0319 **EPA 5030B** EPA 524.2 ug/L

Page 1 of 6

Project: WMP TASK 3

Project: WMP TASK 3				b Sample Jumber	Date Collected	Matrix		Date Analyzed 04/11/06	QC Ba	
Client Sample Number			06-04-0	)319-1	04/06/06	Aqueous	04/11/06	04/11/06	000411	201
30S/10E-13F1							Resu	t RL	DE	Qual
Parameter.	<u>Result</u>	<u>RL</u>	<u>D</u> E	Qual	Parameter Tetrachloroeth	ene	0.73	0.50	1	
Dichlorodifluoromethane	ND	0.50	1		2-Hexanone	6110	ND	5.0	1	
Chloromethane	ND	0.50	1		Dibromochlore	methane	ND	0.50	1	
1,1,2-Trichloro-1,2,2-Triffuoroethane	ND	0.50	1		1,2-Dibromoet	hana	ND	0.50	1	
Vinyl Chloride	ND	0.50	1		Chlorobenzen		ND	0.50	1	
Promomethane	ND	0.50	1			•	ND	50	1	
Chloroethane	ND	0.50	1		Ethanol		МĎ	2.0	1	
Chlorofluoromethane	ND	0.50	1		Acrolein 1,1,1,2-Tetrac	hlamathana	П	0.50	1	
	ND	0.50	1				ND	0.50	1	
Diethyl Ether	ND	0.50	1	•	Ethylbenzene		ND	0.50	1	
1,1-Dichloroethene	ND	0.50	1		p/m-Xylene		ND	0.50	1	
lodomethane	ND	10	1		o-Xylene		ND	0.50	1	
Acetone	ND	0.50	1		Styrene		ND	0.50	1	
Carbon Disulfide	ND	0.50	1		Bromoform		ND	0.50	1	
Allyl Chloride	ND	2.0	1		Isopropylbena	zene	ND	0.50	1	
Methylene Chloride	ND	2.0	1		1,1,2,2-Tetra	chlorcethane	ND	0.50	1	
Acrylonitrile	ND	0.50	1		t-1,4-Dichloro	5-2-Butene	ND	0.50	1	
t-1,2-Dichloroethene	ND	0.50	1		1,2,3-Trichlo		ND	0.50	1	
1,1-Dichloroethane	ND	2.0	1		Bromoberize		ND	0.50	1	
2-Butanone	ND	0.50	1		n-Propylbenz		ND	0.50	1	
c-1,2-Dichloroethene	ND	0.50	1		2-Chlorotolue	en <del>e</del>	ND	0.50	1	
2,2-Dichloropropane		0.50	1		4-Chlorotolu		ND ND		1	
Bromochloromethane	ND	5.0	i		1,3,5-Trimet	hylbenzene			1	
Tetrahydrofuran	ND	0.50	1		tert-Butylben	zene	ND		1	
Chloroform	ND	-	1		1,2,4-Trimet	hylibenzene	ND		1	
1,1,1-Trichloroethane	ND	0.50	1		sec-Butylber		ND		1	
1,1-Dichloropropene	ND	0.50	1		p-!sopropyito	oluene	ND	_		
Carbon Tetrachloride	ND	0.50	1		1.3-Dichloro	benzene	ND	_		-
1,2-Dichloroethane	ND	0.50	1		1,4-Dichloro	benzene	NE	_		! 1
Benzene	ND	0.50	1		n-Butvibenz	ene	NE			1 1
Trichloroethene	ND	0.50		-	Methyl-t-But	tyl Ether (MTBE)	) NE			1 1
1.2-Dichloropropane	ND	0.50	1		1.2-Dichlere	benzene	NL	_		1 1
Methyl Methacrylate	ND	5.0	1	•	1.2-Dibrom	o-3-Chloropropa	ne Ni			,
Dibromomethane	ND	0.50	1		1 2 4-Trichl	orobenzene	NL	_		1
Bromodichloromethane	ND	0.50		1	Hayachloro	1,3-Butadiene	N	_		1
c-1,3-Dichloropropene	ND	0.50		1	Naphthalen		N		,	1
4-Methyl-2-Pentanone	ND	5.0		1	1.2.3.Trichl	lorobenzene	N		)	1
Toluene	ND	0.50		1	Tet Rutal	Alcohol (TBA)	N			1
t-1,3-Dichloropropene	ND	0.50		1	Discovery	Ether (DIPE)	N	_		1
Ethyl Methacrylate	ND	0.50		1	DISOLUTION.	VI Ether (ETBE)	N			1
1,1,2-Trichloroethane	ND	0.50		1	Emyr-r-Dug	Methyl Ether (TA	(ME) N			1
1,1,2-1 richioropropane	ND	0.50		1			RE	C (%) Com		<u>Qual</u>
	REC (%)	Contro		<u>Qu</u>	al Surrogates	h.		<u>Lim</u>		
Surrogates:	<del></del> _	<u>Limits</u>			4.2 Diables	robenzene-d4	9	71-1	25	
1,4-Bromofluorobenzene	95	68-12	2		1,Z-DIGNO	CONTROL .				

DF - Dilution Factor ,



# alscience nvironmental aboratories, Inc.

#### **Analytical Report**

Cleath & Associates 1390 Oceanaire Drive San Luis Obispo, CA 93405-4920 Date Received: Work Order No: Preparation: Method: Units: 04/07/06 06-04-0319 EPA 5030B EPA 524.2 ug/L

Project: WMP TASK 3

Page 2 of 6

Client Sample Number				Sample lumber	Date <u>Collected</u>	Matrix	1 10pa 0=	Date Analyzed	QC Ba	-
30S/11E-17E9			06-04-0	319-2	04/06/06	Aqueous	04/11/06	04/11/06	060411	LUI
3007121121	D4	RL.	DE	Qual	Parameter		Resu		DE	Qual
<u>Parameter</u>	Result		1		Tetrachloroeth	ene	ND	0.50	1	
Dichlorodifluoromethane	ND	0.50	1		2-Hexanone		ND	5.0	1	
Chloromethane	ND	0.50	1		Dibromochloro	methane	ND	0.50	1	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.50	1		1,2-Dibromoet		ND	0.50	1	
√inyl Chloride	ND	0.50	1		Chlorobenzen		ND	0.50	1	
Bromomethane	ND	0.50	1		Ethanoi		ND	50	1	
Chloroethane	ND	0.50	1		1,1,1,2-Tetrac	hloroethane	ND	0.50	1	
Trichlorofluoromethane	ND	0.50	1		Acrolein		ND	2.0	1	
Diethyl Ether	ND	0.50	1		Ethylbenzene		ND	0.50	1	
1,1-Dichloroethene	ND	0.50	1		p/m-Xylene		ND	0.50	1	
lodomethane	ND	0.50	1		o-Xylene		ND	0.50	1	
Acetone	ND	10			Styrene		ND	0.50	1	
Carbon Disutfide	ND	0.50	1		Bromoform		ND	0,50	1	
Allyl Chloride	ND	0.50	1		isopropylbenz	rene	МD	0.50	1	
Methylene Chloride	ND	2.0	•		1,1,2,2-Tetrac	hloroethane	ND	0.50	1	
Acrylonitrile	ND	2.0	1		t-1,4-Dichloro	-2-Butene	ND	0.50	1	
t-1,2-Dichloroethene	ND	0.50	1		1,2,3-Trichlor		ND	0.50	1	
1,1-Dichloroethane	ND	0.50	1		Bromobenzer		ND	0.50	1	
2-Butanone	ND	2.0	1		n-Propylbenz		ND	0.50	1	
c-1,2-Dichloroethene	ND	0.50	1		2-Chlorotolue		ND	0.50		
2.2-Dichloropropane	ND	0.50	1		4-Chlorotolue		ND	0.50		
Bromochioromethane	ND	0.50	1		1,3,5-Trimeth		ND	0.50		
Tetrahydrofuran	ND	5.0	1		tert-Butylben		ND	0.50	1	
Chloroform	ND	0.50	1		1,2,4-Trimeth		ND	0.50	1	
1,1,1-Trichloroethane	ND	0.50	1		sec-Butytoen	7000	ND	0.50	1	
1,1-Dichloropropene	ND	0.50	1		p-Isopropyito	luone	ПN	0.50		
Carbon Tetrachioride	ND	0.50	1		1,3-Dichlorol	10010 100100	ND	0.50	1	
1,2-Dichioroethane	ND	0.50	1		1,4-Dichlorol	2017000	ND	0.50	) 1	
Benzene	ND	0.50	1		n-Butylbenze		ND	0.50	1	
Trichloroethene	ND	0.50	1		R-Dutylberize	yl Ether (MTBE)	ND	0.50	) 1	
1,2-Dichioropropane	ND	0.50	1		1,2-Dichlorol	AI PRIOR (MILE)	ND		) 1	
Methyl Methacrylate	ND	5.0	1		1,Z-DICHIOFO	penzene -3-Chioropropane			1	i
Dibromomethane	ND	0.50	1		1,2-Uibromo 1,2,4-Trichk		, ND		) 1	,
Bromodichloromethane	ND	0.50	1		1,Z,4-1 FCRK	1,3-Butadiene	ND			
c-1,3-Dichloropropene	ND	0.50	1				ND			l .
4-Methyl-2-Pentanone	ND	5.0	1		Naphthalene		NE			ļ
Toluene	ND	0.50	1		1,2,3-Trichk		NE		•	I
t-1,3-Dichloropropene	ND	0.50	1		Tert-Butyl A	Icohol (TBA)	NO			I
Ethyl Methacrylate	ND	0.50	1		⊔πsopropyl	Ether (DIPE)	NE			1
1,1,2-Trichloroethane	ND	0.50	1		Ethyl-t-Butyl	Ether (ETBE)	•			1
1,3-Dichloropropane	ND	0.50	1		Tert-Amyl-M	lethyl Ether (TAN		(%) <u>Con</u>		Qual
Surrogates:	REC (%)	Contro Limits		Qual	Surrogates:		89 <u>17</u> 2	Lin	its .	
1,4-Bromofluorobenzene	98	68-122			1,2-Dichloro	obenzene-d4	89	7 1-1	20	

RL - Reporting Limit

DF - Dilution Factor ,

# alscience nvironmental aboratories, Inc.

#### **Analytical Report**

Cleath & Associates 1390 Oceanaire Drive San Luis Obispo, CA 93405-4920 Date Received: Work Order No: Preparation: Method: Units: 04/07/06 06-04-0319 EPA 5030B EPA 524.2 ug/L

Project: WMP TASK 3

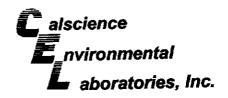
Page 3 of 6

City of Commission				b Sample Number	Date Collected	Matrix	Date Prepared /	Date Analyzed	QC Ba	ich ID
Client Sample Number			06-04-0		04/06/06	Aqueous	04/11/06	04/11/06	060411	L01
30S/10E-13Q1					Donometor		Result	RL	DE	Qual
<u>Parameter</u>	<u>Result</u>	RL.	DE	Qual	Parameter Tetrachloroeth	ano.	ND	0.50	1	
Dichlorodifluoromethane	ND	0.50	1		2-Hexanone	GI NG	ND	5.0	1	
Chloromethane	ND	0.50	1		Dibromochloro	methana	ND	0.50	1	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.50	1		1,2-Dibromoet	hana	ND	0.50	1	
Vinyl Chloride	ND	0.50	1		Chlorobenzen		ND	0.50	1	
Bromomethane	ND	0.50	1		Acrolein	•	ND	2.0	1	
Chloroethane	ND	0.50	1		Ethanol		ND	50	1	
Trichlorofluoromethane	ND	0.50	1		1,1,1,2-Tetrac	hlomethane	ND	0.50	1	
Diethyl Ether	ND	0.50	1		Ethyibenzene	HOT DOG RAILS	ND	0.50	1	
1,1-Dichloroethene	ND	0.50	1		p/m-Xylene		ND	0.50	1	
lodomethane	ND	0.50	1				ND	0.50	1	
Acetone	ND	10	1		o-Xylene		ΩN	0.50	1	
Carbon Disulfide	ND	0.50	1		Styrene		ND QN	0.50	1	
Allyl Chloride	ND	0.50	1		Bromoform	nn0	ND	0.50	1	
Methylene Chloride	ΝĐ	2.0	1		Isopropylbenz	de la constitución	ND	0.50	1	
Acrylonitrile	ND	2.0	1		1,1,2,2-Tetrac t-1,4-Dichloro	2 Butana	ND	0.50	1	
t-1,2-Dichloroethene	ND	0.50	1		t-1,4-Dichloro	-7-DRG  IB	ND	0.50	1	
1.1-Dichloroethane	ND	0.50	1		1,2,3-Trichlor		ND	0.50	1	
2-Butanone	ND	2.0	1		Bromobenzen		ND	0.50	1	
c-1,2-Dichloroethene	ND	0.50	1		n-Propyibenz		ND	0.50	1	
2,2-Dichloropropane	ND	0.50	1		2-Chlorotolue 4-Chlorotolue		ND	0.50	1	
Bromochloromethane	ND	0.50	1		, -,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		ND	0.50	1	
Tetrahydrofuran	ND	5.0	1		1,3,5-Trimeth		ND	0.50	1	
Chloroform	ND	0.50	1		tert-Butylbenz		ND	0.50	1	
1,1,1-Trichloroethane	ND	0.50	1		1,2,4-Trimeth		ND	0.50	1	
1.1-Dichloropropene	ND	0.50	1		sec-Butylben		ND	0.50	1	
Carbon Tetrachloride	ND	0.50	1		p-isopropytto		ND	0.50	1	
1,2-Dichloroethane	ND	0.50	1		1,3-Dichlorob		ND	0.50	1	
Benzene	ND	0.50	1		1.4-Dichlorot		ND	0.50	i	
Trichloroethene	ND	0.50	1		n-Butylbenze	NO J CALAS /JJTDC\	ND	0.50	i	
1.2-Dichloropropane	ND	0.50	1			d Ether (MTBE)	ND	0.50	•	
Methyl Methacrylate	ND	5.0	1		1,2-Dichlorol	enzene a Chlomosess		2.0	1	
Dibromomethane	ND	0.50	1		1,2-Dibromo	3-Chloropropane	ND	0.50	1	
Bromodichloromethane	ND	0.50	1		1,2,4-Trichlo		ND	0.50	i	
c-1.3-Dichloropropene	ND	0.50	1		-	1,3-Butadiene	ND	0.50	4	
4-Methyl-2-Pentanone	ND	5.0	1		Naphthalene		ND	0.50	1	
Toluene	ND	0.50	1		1,2,3-Trichlo	robenzene	ND ND	10	1	
t-1,3-Dichloropropene	ND	0.50	1		Tert-Butyl Al	cohol (LBA)	ND ND	2.0	i	
Ethyl Methacrylate	ND	0.50	1		Diisopropyl F	ther (UIPE)	ND ND	2.0	1	
1.1.2-Trichloroethane	ND	0.50	1		Ethyl-t-Butyl	Ether (ETBE)		2.0	1	
1.3-Dichloropropane	ND	0.50	1			ethyl Ether (TAM	E) ND REC			Qual
Surrogates:	REC (%)	Control Limits		<u>Qual</u>	Surrogates:			(76) <u>Corni</u> Limit 71-12	<u>.</u>	, <del>10</del>
1,4-Bromofluorobenzene	96	68-122			1,2-Dichloro	benzene d4	97	/1-12	U	

RL - Reporting Limit

DF - Dilution Factor ,

Qual - Qualmers



#### **Analytical Report**

Cleath & Associates 1390 Oceanaire Drive San Luis Obispo, CA 93405-4920 Date Received: Work Order No: Preparation: Method: Units: 04/07/06 06-04-0319 EPA 5030B EPA 524.2 ug/L

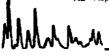
Project: WMP TASK 3

Page 5 of 6

1,1-Dichloropropene ND Carbon Tetrachioride ND Carbon Trichloroethane ND Carbon Trichloroethene ND Carbon Methyl Methacrylate ND Carbon Methyl		06-04-0 DE	319-5	04/06/06	•				
Parameter  Parameter  Dichforodiffuoromethane  Chloromethane  ND  O.5  Chloromethane  ND  O.5  I,1,2-Trichloro-1,2,2-Triffuoroethane  ND  O.5  Bromomethane  ND  O.5  Chloroethane  ND  O.5  Chloroethane  ND  O.5  Trichkoroffuoromethane  ND  Diethyl Ether  I,1-Dichloroethene  Iodomethane  ND  O.6  Altyl Chloride  ND  Altyl Chloride  ND  Acetone  Carbon Disulfide  ND  O.6  Methylene Chloride  ND  Acylonitrile  t-1,2-Dichloroethene  ND  C-1,2-Dichloroethene  ND  C-1,2-Dichloroethene  ND  C-1,2-Dichloroethene  ND  C-1,2-Dichloroethene  ND  C-1,2-Dichloroethene  ND  C-1,1-Trichloroethane  ND  Tetrahydrofuran  Chloroform  ND  I,1-Trichloroethane  ND  I,1-Trichloroethane  ND  I,1-Trichloroethane  ND  I,1-Dichloropropene  Carbon Tetrachloride  ND  I,1-Dichloropropene  Carbon Tetrachloride  ND  I,2-Dichloroethane  ND  Carbon Tetrachloride  ND  I,2-Dichloroethane  ND  Carbon Tetrachloride  ND  I,2-Dichloropropene  ND  I,2-Dichloropropene					Aqueous	04/11/06	04/11/06	060411	L01
Dichforodifluoromethane Chloromethane Chloromethane Chloromethane ND O.s. Chloromethane ND O.s. O.s. O.s. O.s. O.s. O.s. O.s. O.s			Qual	<u>Parameter</u>		Result		<b>DE</b>	Qual
Chloromethane  1,1,2-Trichloro-1,2,2-Trifflucroethane ND ND NID NID NID NID NID NID NID NID N	) )	1		Tetrachloroethe	ene	ND	0.50	1	
Antornertanie An	0	1		2-Hexanone		ND	5.0	1	
Vinyl Chloride Bromomethane ND Oisthyl Ether 1,1-Dichloroethene ND Oisthyl Ether ND Oisthyl		1		Dibromochloro	methane	ND	0.50	1	
Promomethane ND 0.5  Bromomethane ND 0.5  Chloroethane ND 0.5  Trichlorofluoromethane ND 0.5  Li-Dichloroethene ND 0.5  Acetone ND 10  Carbon Disulfide ND 0.5  Acetone ND 10  Acetone ND 10  Acetone ND 10  Allyl Chloride ND 0.5  Methylene Chloride ND 2.5  Acrylonitrile ND 2.5  L-1,2-Dichloroethene ND 0.5  L-1,2-Dichloroethene ND 0.5  L-1,2-Dichloroethene ND 0.5  Bromochloromethane ND 0.5  Bromochloromethane ND 0.5  Tetrahydrofuran ND 0	0	1		1,2-Dibromoeti	hane	ND	0.50	1	
Chloroethane Trichlorofluoromethane Diethyl Ether ND O. 1,1-Dichloroethene ND O. 1,1-Dichloroethene ND O. 1,1-Dichloroethene ND O. Acetone Carbon Disulfide Allyl Chloride ND Methylene Chloride ND Acryonitrile ND C-Dichloroethene ND O.		1		Chlorobenzene	•	ND	0.50	1	
Chloroenane Trichlorofluoromethane Diethyl Ether ND 0. 1,1-Dichloroethene ND 0. Acetone ND 10 Carbon Disulfide ND 0. Allyl Chloride ND Methylene Chloride ND Acrylonitrile ND 1,1-Dichloroethene ND 1,1-Dichloroethene ND 1,1-Dichloroethene ND 2-Butanone ND 2-Butanone ND 2-Dichloroethene ND 10 ND		1		Acrolein		ND	2.0	1	
Diethyl Ether Diethyl Ether Diethyl Ether ND O. 1,1-Dichloroethene ND O. Acetone ND Acetone ND O. Acetone ND O. Allyl Chloride ND O. Allyl Chloride ND O. Achylonitrile ND Carbon Disulfide ND O. Achylonitrile ND Carbonitrile ND O. Acylonitrile ND O. Acylonitrile ND O. Acylonitrile ND O. Acylonitrile ND O. Carbonitrile ND O. Carbonitrile ND O. O. Carbonitrile ND O. Carbonitrile ND O.	-	1		1,1,1,2-Tetracl	hloroethane	ND	0.50	1	
Destry Ether  1,1-Dichloroethene  2,2-Dichloroethene  2,2-Dichloroethene  1,2-Dichloroethene  1,1-Dichloroethene  1,1-Dichloroethene  1,1-Dichloroethene  1,1-Dichloroethene  1,1-Dichloroethene  1,1-Dichloroethene  1,1-Dichloropropane  1,1-Trichloroethene  1,1-Trichloroethene  1,1-Dichloropropene  1,1-Dichloropropene  1,1-Dichloropropene  1,1-Dichloropropene  1,1-Dichloroethene  1,2-Dichloroethene  1,2-Dichloroethene  1,2-Dichloroethene  1,2-Dichloroethene  1,2-Dichloroethene  1,2-Dichloropropene  Methyl Methacrylate  Dibromomethane  Bromodichloromethane  ND  1-Methyl-2-Pentanone  ND  Toluene	-	i		Ethanol		ND	50	1	
In-Deriborestrate Indomethane	-	1		Ethylbenzene		ND	0.50	) 1	
Acetone ND 10 Carbon Disulfide ND 0. Allyl Chloride ND 0. Methylene Chloride ND 2. Acrylonitrile ND 2. Acrylonitrile ND 0. Allyl Chloroethene ND 0. 1,1-Dichloroethene ND 0. 2-Butanone ND 2. Butanone ND 2. Butanone ND 2. C-1,2-Dichloroethene ND 0. 2,2-Dichloropropane ND 0. Bromochloromethane ND 0. Tetrahydrofuran ND 5. Chloroform ND 0. 1,1-Trichloroethane ND 0. 1,1-Trichloroethane ND 0. 1,1-Dichloropropane ND 0. Carbon Tetrachloride ND 0. Carbon Tetrachloride ND 0. Carbon Tetrachloride ND 0. Carbon Tetrachloride ND 0. Methyl Methacrylate ND 0. Methyl Methacrylate ND 0. Bromodichloromethane ND 0.  Label ND		1		p/m-Xylene		ND	0.50	•	
Acetone Carbon Disulfide Carbon Disulfide ND O. Allyl Chloride ND Acrylonitrile t-1,2-Dichloroethene 1,1-Dichloroethene C-1,2-Dichloroethene ND C-1,2-Dichloroethene ND C-1,2-Dichloroethene ND C-1,2-Dichloroethene ND C-1,2-Dichloroethene ND C-1,2-Dichloroethene ND Romochloromethane ND Tetrahydrofuran ND Chloroform ND	~	•		o-Xylene		ND	0.50	1	
Carbon Distance Allyl Chloride  Methylene Chloride  Acrylonitrile  t-1,2-Dichloroethene 1,1-Dichloroethene 2,2-Dichloroethene 2,2-Dichloroethene 2,2-Dichloroethene 2,2-Dichloroethene 2,2-Dichloroethene 2,2-Dichloroethene 3,0  Bromochloromethane  Tetrahydrofuran Chloroform 1,1,1-Trichloroethane 1,1-Dichloropropene 1,1-Dichloropropene 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloropropene ND Methyl Methacrylate Dibromomethane ND Bromodichloromethane ND Bromodichloromethane ND Bromodichloromethane ND	'n	i		Styrene		ND	0.50	1	
Methylene Chloride Methylene Chloride Methylene Chloride Acrylonitrile t-1,2-Dichloroethene 1,1-Dichloroethane ND 2-Butanone c-1,2-Dichloroethene ND 2-Butanone ND 2-Butanone ND 0-Carloroethane ND 0-Carloroethane ND 1,1-Trichloroethane ND 1,1-Trichloroethane ND 1,1-Dichloropropene ND 1,2-Dichloropropene ND 1,2-Dichloroethane ND 1,2-Dichloroethane ND 1,2-Dichloroethane ND 1,2-Dichloroethane ND 1,2-Dichloroethane ND 1,2-Dichloroethane ND 1,2-Dichloropropane ND 1,3-Dichloropropane	-	1		Bromoform		ND	0.50	1	
Acrylonitrile Acrylonitrile Acrylonitrile Acrylonitrile 1,1-Dichloroethane ND 2-Butanone ND 2-Butanone ND 2-Dichloroethane ND 0 2-Dichloropropane ND 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		1		Isopropylbenz		ND	0.50	1	
Actyoritatie t-1,2-Dichloroethene 1,1-Dichloroethane 1,1-Dichloroethane 2-Butanone c-1,2-Dichloropropane ND 2,2-Dichloropropane ND 00 8romochloromethane Tetrahydrofuran Chloroform 1,1,1-Trichloroethane 1,1-Dichloropropene Carbon Tetrachioride 1,2-Dichloroethane ND 00 1,2-Dichloroethane ND 01 02 03 04 05 06 07 07 08 08 08 08 08 08 08 08 08 08 08 08 08		1		1,1,2,2-Tetrac	hloroethane	ND	0.50	1	
1,1-Dichloroethane ND 0 2-Butanone ND 2 2-Dichloroethane ND 0 2,2-Dichloropropane ND 0 8-Bromochloromethane ND 0 1-terahydrofuran ND 0 1,1,1-Trichloroethane ND 0 1,1-Dichloropropane ND 0 1,1-Dichloropropane ND 0 1,2-Dichloroethane ND 0 1,2-Dichloroethane ND 0 1,2-Dichloroethane ND 0 1,2-Dichloroethane ND 0 1,2-Dichloropropane ND 0 1,3-Dichloropropane ND 0 1,3-Dichlorop		1		t-1,4-Dichloro	-2-Butene	ND	0.50	1	
2-Butanone 2-Butanone c-1,2-Dichloroethene 2,2-Dichloropropane Bromochloromethane Tetrahydrofuran Chloroform 1,1,1-Trichloroethane 1,1-Dichloropropene Carbon Tetrachloride 1,2-Dichloroethane ND Carbon Tetrachloride ND Carbon ND		i		1,2,3-Trichlore	opropane	ND	0.50	1	
2-Butanorie c-1,2-Dichloroethene 2,2-Dichloropropane Bromochloromethane Tetrahydrofuran ND 1,1,1-Trichloroethane ND 1,1-Dichloropropene Carbon Tetrachloride ND 1,2-Dichloroethane ND 1,2-Dichloropropane ND 1,3-Dichloropropane ND 1,3-Dic		i		Bromobenzen	e	ND	0.50	1	
c-1,2-Dichloropropane 2,2-Dichloropropane 8	-	i		n-Propylbenze	ene	ND	0.50	-	
Promochloromethane  Bromochloromethane  Tetrahydrofuran  Chloroform  1,1,1-Trichloroethane  1,1-Dichloropropene  Carbon Tetrachloride  1,2-Dichloroethane  Benzene  Trichloroethene  1,2-Dichloropropane  Modelly Methacrylate  Dibromomethane  Bromodichloromethane  Bromodichloromethane  Bromodichloromethane  ND  Carbon Tetrachloride  ND  Carbon Tetrachloride	-	i		2-Chlorotolue	ne	ND	0.50	1	
Tetrahydrofuran ND 5 Chloroform ND 0 1,1,1-Trichloroethane ND 0 1,1-Dichloropropene ND 0 Carbon Tetrachloride ND 0 1,2-Dichloroethane ND 0 Benzene ND 0 Trichloroethene ND 0 1,2-Dichloropropane ND 0 Methyl Methacrylate ND 0 Dibromomethane ND 0 Seromodichloromethane ND 0 Carbon Tetrachloride ND 0 Carbon T		1		4-Chlorotolue	ne	ND	0.50	1	
Chloroform ND 0  1,1,1-Trichloroethane ND 0  1,1,1-Dichloropropene ND 0  Carbon Tetrachloride ND 0  Benzene ND 0  Trichloroethane ND 0  Trichloroethane ND 0  Methyl Methacrylate ND 0  Dibromomethane ND 0  Bromodichloromethane ND 0  A-Methyl-2-Pentanone ND 0  Toluene N		i		1,3,5-Trimeth	ylbenzene	ND	0.50	1	
Chlorotori  1,1,1-Trichloroethane 1,1-Dichloropropene ND Carbon Tetrachioride 1,2-Dichloroethane ND Carbon Tetrachioride 1,2-Dichloroethane ND Trichloroethene ND ND ND Nethyl Methacrylate ND		1		tert-Butylbenz	ene	ND	0.50	1	
1,1-Dichloropropene ND Carbon Tetrachioride ND Carbon Trichloroethane ND Carbon Trichloroethane ND Carbon Methyl Methacrylate ND Carbon Methyl Methacrylate ND Carbon Methyl Methacrylate ND Carbon Methyl Methologophic ND Carbon MD Carbon MD Carbon MD Carbon MD Carbon MD	50 50	1		1,2,4-Trimeth		ND	0.50	1	
1,1-Dichloroproperie Carbon Tetrachloride 1,2-Dichloroethane ND Carbon Tetrachloride 1,2-Dichloroethane ND Crichloroethene ND ND Nethyl Methacrylate ND ND Nethyl Methacrylate ND ND Normomethane ND	50 50	1		sec-Butylben	zene	ИD	0.50	1	
Carbon Tetractione  1,2-Dichloroethane  ND  Benzene  ND  Trichloroethene  ND  ND  ND  ND  ND  ND  ND  ND  ND  N	50 50	i		p-Isopropyltol		ND	0.50	1	
Benzene ND Control ND ND Control ND ND Control ND		1		1.3-Dichlorob		ND	0.50	1	
Trichloroethene ND (1,2-Dichloropropane ND (1,2-Dichloropropane ND (1,2-Dichloropropane ND (1,2-Dichloropropane ND (1,2-Dichloropropane ND (1,2-Dichloropropane ND (1,3-Dichloropropane ND (1,3-Dichlo	50 50	1		1.4-Dichlorob		П	0.50	1	
1,2-Dichloropropane ND Methyl Methacrylate ND Stromomethane ND Stromomethane ND C-1,3-Dichloropropene ND 4-Methyl-2-Pentanone ND Toluene ND	50 50	1		n-Butylbenze	ne	ND	0.50	1	
Methyl Methacrylate ND Dibromomethane ND Control ND ND Control ND	50 50	1		Methyl-t-Buty	l Ether (MTBE)	ND	0.50	1	
Dibromomethane  Bromodichloromethane  c-1,3-Dichloropropene  4-Methyl-2-Pentanone  Toluene	50	1		1.2-Dichlorob	enzene	ND	0.50	1	
Bromodichloromethane ND C-1,3-Dichloropropene ND 4-Methyl-2-Pentanone ND Toluene ND	0	1		1.2-Dibromo-	3-Chloropropane	ND	2.0	1	
c-1,3-Dichloropropene ND 4-Methyl-2-Pentanone ND Toluene ND	50	1		1,2,4-Trichlo	robenzene	ND	0.50	1	
4-Methyl-2-Pentanone ND Toluene ND	.50	1		Hexachloro-1	.3-Butadiene	ND	0.50	1	
Toluene ND	.50	-		Naphthalene		ND	0.50	1	
lomene	.0	1		1,2,3-Trichlo		ND	0.50	1	
ND ND	.50	1		Tert-Butyl Al	cohol (TBA)	ND	10	1	
f-1"2-Dictitorobiobase	.50	1		Diisopropyl E	ther (DIPE)	ND	2.0	1	
FINI MENISCRAGE	.50	1		Ethult-Rutul	Ether (ETBE)	ND	2.0	1	
1.1.2-Trichloroethane ND	.50	1		Tork-Annal-M	ethyl Ether (TAME	E) ND	2.0	1	
1.3-Dichloropioparia	.50	1	Qual	Surrogates:		REC	(%) <u>Contro</u>		Qual
Surrogates: REC (%)	mits 1-122		<u>rina</u>	1,2-Dichloro	honzana.d4	94	Limits 71-125		

RL - Reporting Limit ,

DF - Dilution Factor ,



# alscience nvironmental aboratories, Inc.

#### **Analytical Report**

Cleath & Associates 1390 Oceanaire Drive San Luis Obispo, CA 93405-4920 Date Received: Work Order No: Preparation: Method: Units: 05/09/06 06-05-0545 EPA 5030B EPA 524.2 ug/L

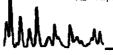
Page 1 of 2

Project: TASK 3 WATER QUALITY

Client Sample Number				b Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Ba	tch ID
30S/11E-18F1			06-05-0	545-1	05/08/06	Aqueous	05/15/06	05/15/06	060515	L01
Parameter	Result	RL	<u>DE</u>	Qual	<u>Parameter</u>		Res		<u>DE</u>	Qual
Dichlorodifluoromethane	ND	0.50	1		Tetrachloroethe	ene	ND	0.50	1	
Chloromethane	ND	0.50	1		2-Hexanone		NĎ	5.0	1	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.50	1		Dibromochloro	methane	ND	0.50	1	
Vinyl Chloride	ND	0.50	1		1,2-Dibromoeth	nan <del>e</del>	ND	0.50	1	
Bromomethane	ND	0.50	1		Chlorobenzene	•	ND	0.50	1	
Chioroethane	ND	0.50	1		Ethanol		62	50	1	
Trichlorofluoromethane	ND	0.50	1		Acrolein		ND	2.0	1	
Diethyl Ether	ND	0.50	1		1,1,1,2-Tetrach	nloroethane	ND	0.50	1	
1,1-Dichloroethene	ND	0.50	1		Ethylbenzene		ND	0.50	1	
iodomethane	ND	0.50	1		p/m-Xylene		ND	0.50	1	
Acetone	ND	10	1		o-Xylene		ND	0.50	1	
Carbon Disulfide	ND	0.50	1		Styrene		ND	0.50	1	
Ally! Chloride	ND	0.50	1		Bromoform		ND	0.50	1	
Methylene Chloride	ND	2.0	1		isopropylbenze	ene	ND	0.50	1	
Acrylonitrile	ND	2.0	1		1,1,2,2-Tetracl		ND	0.50	1	
t-1,2-Dichloroethene	ND	0.50	1		t-1,4-Dichloro-	2-Butene	ND	0.50	1	
1,1-Dichloroethane	ND	0.50	1		1,2,3-Trichloro	propane	ND	0.50	. 1	
2-Butanone	ND	2.0	1		Bromobenzene	•	ND	0.50	1	
c-1,2-Dichloroethene	ND	0.50	1		n-Propylbenze	ne	ND	0.50	1	
2,2-Dichloropropane	ND	0.50	1		2-Chlorotoluen	8	ND	0.50	1	
Bromochloromethane	ND	0,50	1		4-Chlorotoluen	e	ND	0.50	1	
Tetrahydrofuran	ND	5.0	1		1,3,5-Trimethy	toenzene	ND	0.50	1	
Chloroform	ND	0.50	1		tert-Butylbenze	ene	ND	0.50	1	
1,1,1-Trichloroethane	ND	0.50	1		1,2,4-Trimethy	lbenzene	ND	0.50	1	
1,1-Dichloropropene	ND	0.50	1		sec-Butylbenza	ane	ND	0.50	1	
Carbon Tetrachloride	ND	0.50	1		p-Isopropyłtolu	ene	ND	0.50	1	
1,2-Dichloroethane	ND	0.50	1		1,3-Dichlorobe	nzene	ND	0.50	1	
Benzene	ND	0.50	1		1,4-Dichlorobe	nzene	ND	0.50	1	
Trichloroethene	ND	0.50	1		n-Butylbenzen	9	ND		1	
1,2-Dichloropropane	ND	0.50	1		Methyl-t-Butyl	Ether (MTBE)	ND		1	
Methyl Methacrylate	ND	5.0	1		1,2-Dichlorobe	nzene	ND		1	
Dibromomethane	ND	0.50	1		1,2-Dibromo-3	-Chloropropane	ND		1	
Bromodichloromethane	ND	0.50	1		1,2,4-Trichloro	benzene	ND		1	
c-1,3-Dichloropropene	ND	0.50	1		Hexachloro-1,	3-Butadiene	ND		1	
4-Methyl-2-Pentanone	ND	5.0	1		Naphthalene		ND		1	
Toluene	1.9	0.5	1		1,2,3-Trichloro		ND		1	
t-1,3-Dichloropropene	ND	0.50	1		Tert-Butyl Alco	ohol (TBA)	ND		1	
Ethyl Methacrylate	ND	0.50	1		Diisopropyl Ett	her (DIPE)	ND		1	
1,1,2-Trichloroethane	ND	0.50	1		Ethyl-t-Butyl E	ther (ETBE)	ND		1	
1,3-Dichloropropane	ND	0.50	1		Tert-Arnyl-Met	hyl Ether (TAME			1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:		REC	Limits		Qual
1,4-Bromofluorobenzene	91	68-122			1,2-Dichlorobe	enzene-d4	99	71-125		

RL - Reporting Limit

DF - Dilution Factor ,





#### COMPLIANCE, INC. ENVIRONMENTAL OILFIELD

Client: Calscience Environmental Laboratories, Inc.

7440 Lincoln Way

Project: 06-04-0319

Garden Grove, CA 92841-1432

Attn: Bob Stearns

SAMPLE ID: 06-0793-1->4

Date Sampled: 04/06/06 Date Analyzed: 04/07/06

Date Received: 04/07/06

Lab Contact: J. Carstens

		Report Of Analy	ucai itosais			
OEC ID	Client ID	Constituent	Results <sup>2</sup>	Units	Method <sup>1</sup>	PQ
06-0793-01 06-0793-01 Dup 06-0793-02 06-0793-03 06-0793-04	Skyline Skyline South Bay Blvd. Woodland El Moro	Glycol Glycol Glycol Glycol Glycol	ND ND ND ND ND	mg/L mg/L mg/L mg/L mg/L	Colormetric Colormetric Colormetric Colormetric Colormetric	1.0 1.0 1.0 1.0

Results listed as ND would have been reported if present at or above the listed PQL(Practical Quantitation Limit).

Julius G Carstens, Lab Director

<sup>&</sup>lt;sup>1</sup>Quantitative Analytical Chemistry, James S. Fritz, George H. Schenk, 4th ed., p.277, 1979.

<sup>&</sup>lt;sup>2</sup>Results reported as ethylene glycol.



# OILFIELD ENVIRONMENTAL AND COMPLIANCE, INC.

Client: Calscience Environmental Laboratories, Inc.

7440 Lincoln Way

Garden Grove, CA 92841-1432

Attn: Bob Stearns

Project: 05-0545

SAMPLE ID: 06-1043-01

Date Sampled: 05/08/06

Date Analyzed: 05/10/06

Date Received: 05/09/06

Lab Contact: J. Carstens

		Report Of Analy	tical Result	3		
OEC ID	Client ID	Constituent	Results <sup>2</sup>	Units	Method <sup>1</sup>	PQL
06-1043-01 06-1043-01 Dup	30S/11E-18F1 30S/11E-18F1	Glycol Glycol	ND ND	mg/L mg/L	Colormetric Colormetric	1.0 1.0

Results listed as ND would have been reported if present at or above the listed PQL(Practical Quantitation Limit).

Milius G Carstens, Lab Director

<sup>&</sup>lt;sup>1</sup>Quantitative Analytical Chemistry, James S. Fritz, George H. Schenk, 4th ed., p.277, 1979.

<sup>&</sup>lt;sup>2</sup>Results reported as ethylene glycol.

# alscience nvironmental aboratories, Inc.

#### **Analytical Report**

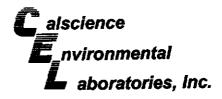
Cleath & Associates 1390 Oceanaire Drive San Luis Obispo, CA 93405-4920 Date Received: Work Order No: Preparation: Method: Units: 04/07/06 06-04-0319 EPA 504.1 Ext. EPA 504.1 ug/L

Page 1 of 1

Project: WMP TASK 3

Project: Wine I you a										
				Sample mber	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bat	ch ID
Client Sample Number					04/06/06	Aqueous	04/07/06	04/10/06	060407	L09
30S/10E-13F1	:		06-04-031	19-1	04/00/00	744005-5				_
Parameter	Result	RL	<u>D</u> E	<u>Qual</u>	Parameter	· Old	Resu ND	<u>it</u> RL 0.020	<u>DF</u> 1	Qual
,2-Dibromoethane	ND	0.020	1		1,2-Dibromo-	3-Chloropropane				1.00
30S/11E-17E9	e		06-04-03	19-2	04/06/06	Aqueous	04/07/06	04/10/06	060407	LUS
Parameter.	Result	BL 2 222	DE	Qual	Parameter	3-Chloropropane	Res ND	ult RL 0.020	<u>DF</u> 1	Qual
1,2-Dibromoethane	ND	0.020				Aqueous	04/07/06	04/10/06	060407	L09
30S/10E-13Q1			06-04-03	19-3	04/06/06	Aqueous				
Parameter	Result	<u>RL</u> 0.020	DE 1	Qual	Parameter 1.2-Dibromo-	3-Chloropropane	Res ND	unit RL 0.020	DE 1	<u>Qual</u>
1,2-Dibromoethane	ND	0.020			04/06/06	Aqueous	04/07/06	04/10/06	060407	/L09
30S/11E-7Q1			06-04-03	519-5	04/06/06	Aqueous				
Parameter	Result	<u>RL</u> 0.020	<u>DF</u>	Qual	Parameter 1.2-Dibromo-	3-Chloropropane	Res ND		<u>DF</u> 1	Qual
1,2-Dibromoethane	ND	0.020			N/A	Aqueous	04/07/06	04/07/06	06040	7L09
Method Blank			095-01-0	リリン・カネス	N/A	Vidoongo	3 44 5 1 1 2 2			
Parameter 1,2-Dibromoethane	Result ND	<u>B</u> L 0.020	<u>DE</u> 1	Qual	Parameter 1,2-Dibromo	-3-Chloropropane	Res NO		<u>D</u> E 1	<u>Qual</u>

Allen RE-HEPOI



#### **Analytical Report**

Cleath & Associates 1390 Oceanaire Drive San Luis Obispo, CA 93405-4920 Date Received: Work Order No: Preparation: Method: Units: 05/09/06 06-05-0545 EPA 504.1 Ext. EPA 504.1 ug/L

Project: TASK 3 WATER QUALITY

Page 1 of 1

Client Sample Number				b Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Ba	tch ID
30S/11E-18F1			06-05-0		05/08/06	Aqueous	05/09/06	05/09/06	060508	L04
Parameter 1.2-Dibromoethane	Result ND	<u>Ri.</u> 0.020	 DE 1	Qual	Parameter 1,2-Dibromo-3	-Chloropropane	Resu ND	t RL 0.020	DE 1	Qual
Method Blank			095-01	-005-996	N/A	Aqueous	05/08/06	05/09/06	060508	L04
Parameter 1,2-Dibromoethane	Result ND	<u>RL</u> 0.020	<u>DE</u> 1	Qual	Parameter 1,2-Dibromo-3	-Chioropropane	Resu ND	0.020	<u>DE</u> 1	Qual





#### ANALYTICAL CHEMISTS

April 25, 2006

Calscience Environmental Laboratories

7440 Lincoln Way

Garden Grove, CA

92841-1432

: SP 603374-01 Lab ID

Customer ID: 2-17756

Sampled On: April 6, 2006-10:25 Sampled By: S. Harris

Received On: April 7, 2006-11:40
Matrix: Drinking Water

Matrix

Description: 30S/10E-13F1 Project

: 06-04-0319

Sample Results - Organic

	Results	PQL	Units	MCL	Prep Method	paration Date/ID	Analysis Date/ID
Constituents	Results	102					
EPA 525.2 AGT:1 Perylene-d12-Surrogate	96.3	70-130	% Rec	0.2	525.2 525.2	04/09/06:A210 04/09/06:A210	04/16/2006:A01 04/16/2006:A01
Benzo(a)pyrene bis(2-Ethylhexyl)adipate bis(2-Ethylhexyl)phthalate	ND ND ND	0.1 1 3	ug/L ug/L ug/L	400 4	525.2 525.2	04/09/06:A210 04/09/06:A210	04/16/2006:A01 04/16/2006:A01
EPA 505 VOA:1 Alachlor Aldrin Chlordane Dieldrin Endrin Heptachlor Heptachlor Epoxide Hexachlorobenzene Hexachlorocyclopentadiene Lindane Methoxychlor Toxaphene PCB 1016 PCB 1221 PCB 1232 PCB 1242 PCB 1248 PCB 1254	ND N	0.2 0.01 0.1 0.01 0.01 0.01 0.01 0.01 0.05 0.1 0.5 0.5 0.5 0.5 0.5 0.5	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	2 0.11 2 0.01 0.01 1 50 0.2 30 3	505 505 505 505 505 505 505 505 505 505	04/10/06:A204	04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02

Table continued next page...

SP 603374: Chemical Results Page 2

Lab ID : SP 603374-01 Customer ID: 2-17756 Description : 30S/10E-13F1

Calscience Environmental Laboratories

### Sample Results - Organic

		ļ				paration Date/ID	Analysis Date/ID
Constituents	Results	PQL	Units	MCL	Method	Date/ID	Date/ID
EPA 507 AGT:1							
Triphenylphosphate-Surrogate	31.7	70-130	% Rec	560*	507	04/20/06:A205	04/25/2006:A02
	ND	1	ug/L		507	04/20/06:A205	04/25/2006:A02
Alachlor	ND	0.5	ug/L	1 1	507	04/20/06:A205	04/25/2006:A02
Atrazine	ND	2	ug/L		507	04/20/06:A205	04/25/2006:A02
Bromacil Butachlor	ND	1	ug/L		507	04/20/06:A205	04/25/2006:A02
_ <del></del>	ND	2	ug/L		507	04/20/06:A205	04/25/2006:A02
Diazinon Dimethoate	ND	2	ug/L	]	507	04/20/06:A205	04/25/2006:A02
Metolachior	ND	1	ug/L	1	507	04/20/06:A205	04/25/2006:A02
Metribuzin	ND	0.5	ug/L		507	04/20/06:A205	04/25/2006:A02
Molinate	ND	2	ug/L	20	507	04/20/06:A205	04/25/2006:A02
Prometryn	ND	2	ug/L		507	04/20/06:A205	04/25/2006:A02
Propachlor	ND	1	ug/L		507	04/20/06:A205	04/25/2006:A02
Simazine	ND	1 1	ug/L	4	507	04/20/06:A205	04/25/2006:A02
Thiobencarb	ND	1	ug/L	70²	507	04/20/06:A205	04/25/2006:A02
EPA 515.3 AGT:1	111	70-130	% Rec		515.3	04/11/06:A241	04/18/2006:A02
2,4-DCAA-Surrogate	ND	2	ug/L	18	515.3	04/11/06:A241	04/18/2006:A02
Bentazon	ND	2	ug/L	70	515.3	04/11/06:A241	04/18/2006:A02
2,4-D	ND	10	ug/L	200	515.3	04/11/06:A241	04/18/2006:A02
Dalapon	ND	1	ug/L		515.3	04/11/06:A241	04/18/2006:A02
Dicamba	ND	2	ug/L	7	515.3	04/11/06:A241	04/18/2006:A02
Dinoseb	ND	0.2	ug/L	1	515.3	04/11/06:A241	04/18/2006:A02
Pentachlorophenol	ND ND	1	ug/L	500	515.3	04/11/06:A241	04/18/2006:A02
Picloram	ND	i	ug/L	50	515.3	04/11/06:A241	04/18/2006:A02
2,4,5-TP (Silvex)	ND	i	ug/L		515.3	04/11/06:A241	04/18/2006:A02
2,4,5-T	1	<u> </u>	<del></del>	1			
EPA 531.1 AGT:1.8		7	ug/L	3 ×	531.1	04/06/06:A211	04/07/2006:A03
Aldicarb	ND	3 4	ug/L ug/L	4 ×	531.1	04/06/06:A211	04/07/2006:A03
Aldicarb Sulfone	ND		ug/L ug/L	3 ×		04/06/06:A211	04/07/2006:A0
Aldicarb Sulfoxide	ND	3 5	ug/L		531.1	04/06/06:A211	04/07/2006:A03
Carbaryl	ND	5	ug/L ug/L	18	531.1	04/06/06:A211	04/07/2006:A0
Carbofuran	ND	3	ug/L	3 >	.415	04/06/06:A211	04/07/2006:A0
3-Hydroxycarbofuran	ND	2	ug/L ug/L	~ ^	531.1	04/06/06:A211	04/07/2006:A0
Methomyl	ND	5	ug/L ug/L	50	531.1	04/06/06:A211	04/07/2006:A0
Oxamyl	ND_	J 3	ug/L				

Table continued next page...

Lab ID : SP 603374-01 Customer ID: 2-17756

Description : 30S/10E-13F1

Calscience Environmental Laboratories

#### Sample Results - Organic

Constituents	Results	PQL	Units	MCL	Pre Method	paration Date/ID	Analysis Date/ID
EPA 547 AGT:1 Glyphosate	ND	20	ug/L	700	547	04/17/06:A212	04/17/2006:A01
EPA 548.1 AGT:1 Endothall	ND	40	ug/L	100	548.1	04/13/06:A213	04/20/2006:A01
EPA 549.2 AST:1 Diquat	ND	2	ug/L	20	549.2	04/13/06:A214	04/20/2006:A01

ND=Non-Detect. PQL=Practical Quantitation Limit. • PQL adjusted for dilutions, concentrations, dry weight reporting, or limited sample.

2 - Secondary Standard.

Containers: (VOA) VOA, (AGT) Amber Glass TFE-Cap. (AST) Amber Silanized-TFE Preservatives: (1) Cool 4°C, (8) Monochloracetic Buffer 560 Surrogate percent recoveries not within the Acceptance Range (AR) due to suspected matrix interferences.





#### ANALYTICAL CHEMISTS

April 25, 2006

Calscience Environmental Laboratories

7440 Lincoln Way

92841-1432 Garden Grove, CA

: SP 603374-02 Lab ID

Customer ID: 2-17756

Sampled On: April 6, 2006-11:30

Sampled By : S. Harris

Received On: April 7, 2006-11:40 Matrix: Drinking Water

Description: 30S/11E-7E9 : 06-04-0319 Project

Sample Results - Organic

Constituents	Results	PQL	Units	MCL	Prep Method	paration Date/ID	Analysis Date/ID
EPA 525.2 AGT:1 Perylene-d12-Surrogate Benzo(a)pyrene bis(2-Ethylhexyl)adipate bis(2-Ethylhexyl)phthalate	95.1 ND ND ND ND	70-130 0.1 1 3	% Rec ug/L ug/L ug/L	0.2 400 4	525.2 525.2 525.2 525.2	04/09/06:A210 04/09/06:A210 04/09/06:A210 04/09/06:A210	04/17/2006:A01 04/17/2006:A01 04/17/2006:A01 04/17/2006:A01
Alachlor Aldrin Chlordane Dieldrin Endrin Heptachlor Heptachlor Epoxide Hexachlorobenzene Hexachlorocyclopentadiene Lindane Methoxychlor Toxaphene PCB 1016 PCB 1221 PCB 1232 PCB 1242 PCB 1248	N D D D D D D D D D D D D D D D D D D D	0.2 0.01 0.1 0.01 0.01 0.01 0.01 0.01 0.05 0.1 0.5 0.5 0.5 0.5	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	2 0.1 2 0.01 0.01 1 50 0.2 30 3	505 505 505 505 505 505 505 505 505 505	04/10/06:A204	04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02

Table continued next page...

SP 603374: Chemical Results Page 5

Lab ID : SP 603374-02 Customer ID: 2-17756 Description : 30S/11E-7E9

# Calscience Environmental Laboratories

# Sample Results - Organic

	Sai	ubie vesi	mis - Orga				
Constituents	Results	PQL	Units	MCL	Pre Method	paration Date/ID	Analysis Date/ID
EPA 507 AGT:1 Triphenylphosphate-Surrogate Alachlor Atrazine Bromacil Butachlor Diazinon Dimethoate Metolachlor Metribuzin Molinate Prometryn Propachlor Simazine	85.4  ND  ND  ND  ND  ND  ND  ND  ND  ND  N	70-130 1 0.5 2 1 2 2 1 0.5 2 1 1	% Rec ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	20 4 70 <sup>2</sup>	507 507 507 507 507 507 507 507 507 507	04/20/06:A205 04/20/06:A205 04/20/06:A205 04/20/06:A205 04/20/06:A205 04/20/06:A205 04/20/06:A205 04/20/06:A205 04/20/06:A205 04/20/06:A205 04/20/06:A205 04/20/06:A205	04/25/2006:A02 04/25/2006:A02 04/25/2006:A02 04/25/2006:A02 04/25/2006:A02 04/25/2006:A02 04/25/2006:A02 04/25/2006:A02 04/25/2006:A02 04/25/2006:A02 04/25/2006:A02 04/25/2006:A02 04/25/2006:A02 04/25/2006:A02 04/25/2006:A02
Thiobencarb  EPA 515.3 AGT:1 2,4-DCAA-Surrogate Bentazon 2,4-D Dalapon Dicamba Dinoseb Pentachlorophenol Picloram 2,4,5-TP (Silvex) 2,4,5-T	ND  129  ND  ND  ND  ND  ND  ND  ND  ND  ND  N	70-130 2 2 10 1 2 0.2 1 1	% Rec ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	18 70 200 7 1 500 50	515.3 515.3 515.3 515.3 515.3 515.3 515.3 515.3 515.3	04/11/06:A241 04/11/06:A241 04/11/06:A241 04/11/06:A241 04/11/06:A241 04/11/06:A241 04/11/06:A241 04/11/06:A241 04/11/06:A241	04/18/2006:A02 04/18/2006:A02 04/18/2006:A02 04/18/2006:A02 04/18/2006:A02 04/18/2006:A02 04/18/2006:A02 04/18/2006:A02 04/18/2006:A02
EPA 531.1 AGT:1,8 Aldicarb Aldicarb Sulfone Aldicarb Sulfoxide Carbaryl Carbofuran 3-Hydroxycarbofuran Methomyl Oxamyl	ND ND ND ND ND ND ND	3 4 3 5 5 3 2 5	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	3 4 3 18 3 50	531.1 531.1 531.1 531.1 531.1 531.1 531.1 531.1	04/06/06:A211 04/06/06:A211 04/06/06:A211 04/06/06:A211 04/06/06:A211 04/06/06:A211 04/06/06:A211	04/07/2006:A0

Table continued next page...

Lab ID

: SP 603374-02 Customer ID: 2-17756

Description: 30S/11E-7E9

# Calscience Environmental Laboratories

## Sample Results - Organic

	5	ambre zee.					
Constituents	Results	PQL	Units	MCL	Pre Method	paration Date/ID	Analysis Date/ID
EPA 547 AGT:1 Glyphosate	ND	20	ug/L	700	547	04/17/06:A212	04/18/2006:A01
EPA 548.1 AGT:1 Endothall	ND	40	ug/L	100	548.1	04/13/06:A213	04/20/2006:A01
EPA 549.2 AST:1 Diquat	ND	2	ug/L	20	549.2	04/13/06:A214	

ND=Non-Detect. PQL=Practical Quantitation Limit. • PQL adjusted for dilutions, concentrations. dry weight reporting, or limited sample.

Secondary Standard.

Containers: (VOA) VOA, (AGT) Amber Glass TFE-Cap. (AST) Amber Silanized-TFE Preservatives: (1) Cool 4°C, (8) Monochloracetic Buffer





#### ANALYTICAL CHEMISTS

April 25, 2006

Calscience Environmental Laboratories

7440 Lincoln Way

Garden Grove, CA 92841-1432

Description: 30S/10E-13Q1 Project: 06-04-0319 Lab ID : SP 603374-03

Customer ID: 2-17756

Sampled On: April 6, 2006-13:30

Sampled By : S. Harris

Received On: April 7, 2006-11:40
Matrix: Drinking Water

Sample Results - Organic

	Da						
Constituents	Results	PQL	Units	MCL	Prep Method	paration Date/ID	Analysis Date/ID
EPA 525.2 AGT:1 Perylene-d12-Surrogate Benzo(a)pyrene bis(2-Ethylhexyl)adipate bis(2-Ethylhexyl)phthalate	94.8 ND ND ND	70-130 0.1 1 3	% Rec ug/L ug/L ug/L	0.2 400 4	525.2 525.2 525.2 525.2	04/09/06:A210 04/09/06:A210 04/09/06:A210 04/09/06:A210	04/17/2006:A01 04/17/2006:A01 04/17/2006:A01 04/17/2006:A01
Alachlor Aldrin Chlordane Dieldrin Endrin Heptachlor Heptachlor Epoxide Hexachlorobenzene Hexachlorocyclopentadiene Lindane Methoxychlor Toxaphene PCB 1016 PCB 1221 PCB 1232 PCB 1242 PCB 1248 PCB 1254 PCB 1260	ND N	0.2 0.01 0.1 0.01 0.01 0.01 0.01 0.01 0.05 0.1 0.5 0.5 0.5 0.5 0.5	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	2 0.1 2 0.01 0.01 1 50 0.2 30 3	505 505 505 505 505 505 505 505 505 505	04/10/06:A204	04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02

Table continued next page...

SP 603374: Chemical Results Page 8

Calscience Environmental Laboratories

: SP 603374-03 Lab ID

Customer ID: 2-17756 Description: 30S/10E-13Q1

# Sample Results - Organic

	Dan	uhie ves					
Constituents	Results	PQL	Units	MCL	Prep Method	aration Date/ID	Analysis Date/ID
EPA 507 AGT:1 Triphenylphosphate-Surrogate Alachlor Atrazine Bromacil Butachlor Diazinon Dimethoate Metolachlor Metribuzin Molinate Prometryn Propachlor Simazine	85.2  ND  ND  ND  ND  ND  ND  ND  ND  ND  N	70-130  1 0.5 2 1 2 2 1 0.5 2 1 1 1 1 1	% Rec ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	20 4 70 <sup>2</sup>	507 507 507 507 507 507 507 507 507 507	04/20/06:A205 04/20/06:A205 04/20/06:A205 04/20/06:A205 04/20/06:A205 04/20/06:A205 04/20/06:A205 04/20/06:A205 04/20/06:A205 04/20/06:A205 04/20/06:A205 04/20/06:A205 04/20/06:A205	04/25/2006:A02 04/25/2006:A02 04/25/2006:A02 04/25/2006:A02 04/25/2006:A02 04/25/2006:A02 04/25/2006:A02 04/25/2006:A02 04/25/2006:A02 04/25/2006:A02 04/25/2006:A02 04/25/2006:A02 04/25/2006:A02 04/25/2006:A02
Thiobencarb  EPA 515.3 AGT:1 2,4-DCAA-Surrogate Bentazon 2,4-D Dalapon Dicamba Dinoseb Pentachlorophenol Picloram 2,4,5-TP (Silvex) 2,4,5-T	ND N	70-130 2 2 10 1 2 0.2 1 1	% Rec ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	18 70 200 7 1 500 50	515.3 515.3 515.3 515.3 515.3 515.3 515.3 515.3 515.3	04/11/06:A241 04/11/06:A241 04/11/06:A241 04/11/06:A241 04/11/06:A241 04/11/06:A241 04/11/06:A241 04/11/06:A241 04/11/06:A241 04/11/06:A241	04/18/2006:A02 04/18/2006:A02 04/18/2006:A02 04/18/2006:A02 04/18/2006:A02 04/18/2006:A02 04/18/2006:A02 04/18/2006:A02 04/18/2006:A02
EPA 531.1 AGT:1,8 Aldicarb Aldicarb Sulfone Aldicarb Sulfoxide Carbaryl Carbofuran 3-Hydroxycarbofuran Methomyl Oxamyl	ND ND ND ND ND ND ND	3 4 3 5 5 3 2 5	ug/L ug/L ug/L ug/L ug/L ug/L ug/L	3 4 3 18 3 50	531.1 531.1 531.1 531.1 531.1 531.1 531.1 531.1	04/06/06:A211 04/06/06:A211 04/06/06:A211 04/06/06:A211 04/06/06:A211 04/06/06:A211 04/06/06:A211	04/07/2006:A0 04/07/2006:A0 04/07/2006:A0 04/07/2006:A0 04/07/2006:A0

Table continued next page...

: SP 603374-03 Lab ID

Customer ID: 2-17756

Calscience Environmental Laboratories

Description: 30S/10E-13Q1

## Sample Results - Organic

i i	-	minh					1
Constituents	Results	PQL	Units	MCL	Pre Method	paration Date/ID	Analysis Date/ID
EPA 547 AGT:1 Glyphosate	ND	20	ug/L	700	547	04/17/06:A212	04/18/2006:A0
EPA 548.1 AGT:1 Endothali	ND	40	ug/L	100	548.1	04/13/06:A213	04/20/2006:A0
EPA 549.2 AST:1 Diquat	ND	2	ug/L	20	549.2	04/13/06:A214	

ND=Non-Detect. PQL=Practical Quantitation Limit. • PQL adjusted for dilutions, concentrations, dry weight reporting, or limited sample.

MCL = Maximium Contaminat Level. 2 - Secondary Standard.

Containers: (VOA) VOA, (AGT) Amber Glass TFE-Cap, (AST) Amber Silanized-TFE Preservatives: (1) Cool 4°C, (8) Monochloracetic Buffer





#### ANALYTICAL CHEMISTS

April 25, 2006

Calscience Environmental Laboratories

7440 Lincoln Way

Garden Grove, CA 92841-1432

: SP 603374-04 Lab ID

Customer ID: 2-17756

Sampled On: April 6, 2006-16:40

Sampled By: S. Harris
Received On: April 7, 2006-11:40
Matrix: Drinking Water

Description: 30S/11E-7Q1 : 06-04-0319 Project

Sample Results - Organic

					Pre	paration	Analysis
Constituents	Results	PQL	Units	MCL	Method	Date/ID	Date/ID
EPA 525.2 AGT:1 Perylene-d12-Surrogate Benzo(a)pyrene bis(2-Ethylhexyl)adipate bis(2-Ethylhexyl)phthalate	98.9 ND ND ND	70-130 0.1 1 3	% Rec ug/L ug/L ug/L	0.2 400 4	525.2 525.2 525.2 525.2	04/09/06:A210 04/09/06:A210 04/09/06:A210 04/09/06:A210	04/17/2006:A01 04/17/2006:A01 04/17/2006:A01 04/17/2006:A01
Alachlor Aldrin Chlordane Dieldrin Endrin Heptachlor Heptachlor Epoxide Hexachlorobenzene Hexachlorocyclopentadiene Lindane Methoxychlor Toxaphene PCB 1016 PCB 1221 PCB 1232 PCB 1242 PCB 1248 PCB 1254	N N N N N N N N N N N N N N N N N N N	0.2 0.01 0.1 0.01 0.01 0.01 0.01 0.01 0.05 0.1 0.5 0.5 0.5 0.5 0.5 0.5	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	2 0.1 2 0.01 0.01 1 50 0.2 30 3	505 505 505 505 505 505 505 505 505 505	04/10/06:A204	04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02 04/13/2006:A02

Table continued next page...

SP 603374: Chemical Results Page 11

CA ELAP Certification No. 1573

Lab ID : SP 603374-04 Customer ID: 2-17756 Description : 30S/11E-7Q1

Calscience Environmental Laboratories

## Sample Results - Organic

	Sai	iipie ites	mis - Orgi	·		<del></del>	
					Pre	paration	Analysis
Constituents	Results	PQL	Units	MCL	Method	Date/ID	Date/ID
TIPA FOR ACT-1			-				
EPA 507 AGT:1	113	70-130	% Rec	]	507	04/20/06:A205	04/25/2006:A02
Triphenylphosphate-Surrogate	ND	1	ug/L		507	04/20/06:A205	04/25/2006:A02
Alachlor	ND	0.5	ug/L	1	507	04/20/06:A205	04/25/2006:A02
Atrazine	ND ND	2	ug/L		507	04/20/06:A205	04/25/2006:A02
Bromacil	ND	1	ug/L	1	507	04/20/06:A205	04/25/2006:A02
Butachlor	ND	2	ug/L		507	04/20/06:A205	04/25/2006:A02
Diazinon	ND	2	ug/L	·	507	04/20/06:A205	04/25/2006:A02
Dimethoate	ND	1	ug/L	1	507	04/20/06:A205	04/25/2006:A02
Metolachlor	ND	0.5	ug/L		507	04/20/06:A205	04/25/2006:A02
Metribuzin	ND	2	ug/L	20	507	04/20/06:A205	04/25/2006:A02
Molinate	ND	2	ug/L	1	507	04/20/06:A205	04/25/2006:A02
Prometryn	ND	1	ug/L		507	04/20/06:A205	04/25/2006:A02
Propachlor	ND	1	ug/L	4	507	04/20/06:A205	04/25/2006:A02
Simazine	ND	1	ug/L	70²	507	04/20/06:A205	04/25/2006:A02
Thiobencarb	<del>                                     </del>	<del>                                     </del>					
EPA 515.3 AGT:1		50.120	% Rec	1	515.3	04/11/06:A241	04/18/2006:A02
2,4-DCAA-Surrogate	112	70-130		18	515.3	04/11/06:A241	04/18/2006:A02
Bentazon	ND	2	ug/L	70	515.3	04/11/06:A241	04/18/2006:A02
2,4-D	ND	2	ug/L	200	515.3	04/11/06:A241	04/18/2006:A02
Dalapon	ND	10	ug/L	200	515.3	04/11/06:A241	04/18/2006:A02
Dicamba	ND	1	ug/L	7	515.3	04/11/06:A241	04/18/2006:A02
Dinoseb	ND	2	ug/L	1 1	515.3	04/11/06:A241	04/18/2006:A02
Pentachlorophenol	ND	0.2	ug/L	500	515.3	04/11/06:A241	04/18/2006:A02
Picloram	ND	1	ug/L	50	515.3	04/11/06:A241	04/18/2006:A02
2,4,5-TP (Silvex)	ND	1	ug/L	) 30	515.3	04/11/06:A241	04/18/2006:A02
2,4,5-T	ND	1	ug/L		1313.3		<del>                                     </del>
TODA 521 1 AGT:1.8					1		
EPA 531.1 AGT:1.8	ND	3	ug/L	3	531.1	04/06/06:A211	04/07/2006:A03
Aldicarb	ND	4	ug/L	4	531.1	04/06/06:A211	04/07/2006:A0
Aldicarb Sulfone	ND	3	ug/L	3	531.1	04/06/06:A211	04/07/2006:A0
Aldicarb Sulfoxide	ND	5	ug/L		531.1	04/06/06:A211	04/07/2006:A0
Carbaryl	ND	5	ug/L	18	531.1	04/06/06:A211	04/07/2006:A0
Carbofuran	ND	3	ug/L	3	531.1	04/06/06:A211	04/07/2006:A0
3-Hydroxycarbofuran	ND	2	ug/L		531.1	04/06/06:A211	04/07/2006:A0
Methomyl	ND	5	ug/L	50	531.1	04/06/06:A211	04/07/2006:A0
Oxamyl	140						

Table continued next page...

: SP 603374-04 Lab ID

Calscience Environmental Laboratories

Customer ID: 2-17756 Description: 30S/11E-7Q1

## Sample Results - Organic

	130	minhie 1700					<del>                                     </del>
Constituents	Results	PQL	Units	MCL	Prep Method	paration Date/ID	Analysis Date/ID
		<del> </del>					
EPA 547 AGT:1 Glyphosate	ND	20	ug/L	700	547	04/17/06:A212	04/18/2006:A0
EPA 548.1 AGT:1 Endothall	ND	40	ug/L	100	548.1	04/13/06:A213	04/20/2006:A0
EPA 549.2 AST:1 Diquat	ND	2	ug/L	20	549.2	04/13/06:A214	

ND=Non-Detect. PQL=Practical Quantitation Limit. • PQL adjusted for dilutions, concentrations, dry weight reporting, or limited sample.

<sup>2</sup> - Secondary Standard.

Containers: (VOA) VOA, (AGT) Amber Glass TFE-Cap, (AST) Amber Silanized-TFE Preservatives: (1) Cool 4°C. (8) Monochloracetic Buffer





#### ANALYTICAL CHEMISTS

May 31, 2006

: SP 604463-01 Lab ID

Customer ID: 2-17756

Calscience Environmental Laboratories

7440 Lincoln Way

92841-1432 Garden Grove, CA

Sampled On: May 8, 2006-15:00 Sampled By: Spencer Harris Received On: May 9, 2006-11:00 Matrix: Drinking Water

Description: 30S/11E-18F1 - Los Osos

Project : 05-0545

Sample Results - Organic

Constituents	Results	PQL	Units	MCL	Prep Method	aration Date/ID	Analysis Date/ID
EPA 525.2 AGT:1 Perylene-d12-Surrogate Benzo(a)pyrene bis(2-Ethylhexyl)adipate bis(2-Ethylhexyl)phthalate	90.4 ND ND ND	70-130 0.1 1 3	% Rec ug/L ug/L ug/L	0.2 400 4	525.2 525.2 525.2 525.2	05/21/06:A210 05/21/06:A210 05/21/06:A210 05/21/06:A210	05/27/2006:A01 05/27/2006:A01 05/27/2006:A01 05/27/2006:A01
EPA 505 VOA:1 Alachlor Aldrin Chlordane Dieldrin Endrin Heptachlor Heptachlor Epoxide Hexachlorobenzene Hexachlorocyclopentadiene Lindane Methoxychlor Toxaphene PCB 1016 PCB 1221 PCB 1232 PCB 1242 PCB 1248 PCB 1254 PCB 1260	ND ND ND ND ND ND ND ND ND NN ND NN ND NN ND NN ND NN NN	0.2 0.01 0.1 0.01 0.01 0.01 0.01 0.01 0.05 0.1 0.5 0.5 0.5 0.5 0.5 0.5	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	2 0.1 2 0.01 0.01 1 50 0.2 30 3	505 505 505 505 505 505 505 505 505 505	05/12/06:A204 05/12/06:A204 05/12/06:A204 05/12/06:A204 05/12/06:A204 05/12/06:A204 05/12/06:A204 05/12/06:A204 05/12/06:A204 05/12/06:A204 05/12/06:A204 05/12/06:A204 05/12/06:A204 05/12/06:A204 05/12/06:A204 05/12/06:A204 05/12/06:A204 05/12/06:A204 05/12/06:A204	05/12/2006:A01 05/12/2006:A01 05/12/2006:A01 05/12/2006:A01 05/12/2006:A01 05/12/2006:A01 05/12/2006:A01 05/12/2006:A01 05/12/2006:A01 05/12/2006:A0 05/12/2006:A0 05/12/2006:A0 05/12/2006:A0 05/12/2006:A0 05/12/2006:A0 05/12/2006:A0 05/12/2006:A0

Table continued next page...

SP 604463: Chemical Results Page 2

May 31, 2006

Lab ID : SP 604463-01 Customer ID: 2-17756 Description : 30S/11E-18F1 - Los Osos Calscience Environmental Laboratories

#### Sample Results - Organic

	- DH	iipic itto					7
					Pre	paration	Analysis
Constituents	Results	PQL	Units	MCL	Method	Date/ID	Date/ID
EPA 507 AGT:I						05/10/06:A205	05/24/2006:A0I
Triphenylphosphate-Surrogate	89.5	70-130	% Rec		507		05/24/2006:A01
Alachlor	ND	1	ug/L		507	05/10/06:A205	05/24/2006:AU1 05/24/2006:AU1
Atrazine	ND	0.5	ug/L	1	507	05/10/06:A205	05/24/2006:A01
Bromacil	ND	2	ug/L		507	05/10/06:A205	05/24/2006:A01
Butachlor	ND	1	ug/L		507	05/10/06:A205	05/24/2006:A01
Diazinon	ND	2	ug/L	1	507	05/10/06:A205	05/24/2006:A01
Dimethoate	ND	2	ug/L	1	507	05/10/06:A205	05/24/2006:A01
Metolachlor	ND	1	ug/L		507	05/10/06:A205	1
Metribuzin	ND	0.5	ug/L		507	05/10/06:A205	05/24/2006:A01
Molinate	ND	2	ug/L	20	507	05/10/06:A205	05/24/2006:A01
Prometryn	ND	2	ug/L		507	05/10/06:A205	05/24/2006:A01
+ · · · · · · ·	ND	1	ug/L		507	05/10/06:A205	05/24/2006:A01
Propachlor Simazine	ND	1	ug/L	4	507	05/10/06:A205	05/24/2006:A01
	ND	1	ug/L	70²	507	05/10/06:A205	05/24/2006:A01
Thiobencarb				<del>                                     </del>			
EPA 515.3 AGT:1			% Rec		515.3	05/11/06:A241	05/23/2006:B01
2,4-DCAA-Surrogate	107	70-130		<del>                                     </del>	JI	05/L1/06:A241	05/23/2006:B01
Bentazon	ND	2	ug/L	18	515.3	05/11/06:A241 05/11/06:A241	05/23/2006:B01
2,4-D	ND	2	ug/L	70	515.3	••••	05/23/2006:B01
Dalapon	ND	10	ug/L	200	515.3	05/11/06:A241	05/23/2006:B01
Dicamba	ND	1	ug/L	L _	515.3	05/11/06:A241	05/23/2006:801
Dinoseb	ND	2	ug/L	7	515.3	05/11/06:A241	05/23/2006:B01
Pentachlorophenol	ND	0.2	ug/L	1	515.3	05/11/06:A241	05/23/2006:B01
Picloram	ND	1	ug/L	500	515.3	05/11/06:A241	05/23/2006:802
2.4.5-TP (Silvex)	ND	1	ug/L	50	515.3	05/11/06:A241	
2,4,5-T	ND	1	ug/L	1	515.3	05/11/06:A241	05/23/2006:B01
	+						
EPA 531.1 AGT:1.8	1	3	ug/L	3	531.1	05/12/06:A211	
Aldicarb	ND	4	ug/L ug/L	1 4	531.1	05/12/06:A211	05/15/2006:A0
Aldicarb Sulfone	ND		ug/L	3	531.1	05/12/06:A211	05/15/2006:A0
Aldicarb Sulfoxide	ND	3 5	ug/L	1	531.1	05/12/06:A211	05/15/2006:A0
Carbaryl	ND	5	ug/L	18	531.1	05/12/06:A211	
Carbofuran	ND	3	ug/L ug/L	3	531.1	05/12/06:A211	1
3-Hydroxycarbofuran	ND			'	531.1	05/12/06:A211	3 .
Methomyl	ND	2 5	ug/L ug/L	50	531.1	05/12/06:A211	
Oxamyl	ND	<u> </u>	) ug/L				

Table continued next page...

May 31, 2006

Calscience Environmental Laboratories

Lab ID : SP 604463-01 Customer ID: 2-17756 Description : 30S/11E-18F1 - Los Osos

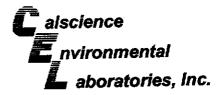
#### Sample Results - Organic

		_					
Constituents	Results	PQL	Units	MCL	Pre Method	paration Date/ID	Analysis Date/ID
EPA 547 AGT:1 Glyphosate	ND	20	ug/L	700	547	05/09/06:A212	05/09/2006:A01
EPA 548.1 AGT:1 Endothall	ND	40	ug/L	100	548.1	05/15/06:A213	05/25/2006:A01
EPA 549.2 AST:1 Diquat	ND	2	ug/L	20	549.2	05/15/06:A214	05/30/2006:A01

ND=Non-Detect. PQL=Practical Quantitation Limit. • PQL adjusted for dilutions, concentrations, dry weight reporting, or limited sample.

MCL = Maximium Contaminat Level. 3 - Secondary Standard.

Containers: (VOA) VOA, (AGT) Amber Glass TFE-Cap, (AST) Amber Silanized-TFE Preservatives: (1) Cool 4°C, (8) Monochloracetic Buffer



#### **Analytical Report**

Cleath & Associates 1390 Oceanaire Drive San Luis Obispo, CA 93405-4920 Date Received: Work Order No: Preparation: Method: 05/09/06 06-05-0545 EPA 3520B EPA 1625CM

Project: TASK 3 WATER QUALITY

Page 1 of 1

DANIGATER !	.31 JALLI Y						
Project: TASK 3 WATER (	QO/NETT !	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
lient Sample Number			05/08/06	Aqueous	05/09/06	05/11/06	060508L13
30S/11E-18F1	<u>,</u>	06-05-0545-1	03/00/00	Aquotas			
Parameter	Result	RL.	<u>DE</u>	Qual	<u>Units</u>		
l-Nitrosodimethylamine	ND	2.0	1		ng/L		
Surrogates:	REC (%)	Control Limits		Qual			
1,4-Dichlorobenzene-d4	55	50-130					
Method Blank		099-07-027-238	NA	Aqueous	05/09/06	05/11/06	060508L13
Parameter.	Result	BL	<u>DF</u>	Qual	<u>Units</u>		
N-Nitrosodimethylamine	ND	2.0	1		ng/L		
Surrogates:	REC (%)	Control Limits		Qual			
1,4-Dichlorobenzene-d4	60	50-130					

PL - Reporting Limit

DF - Dilution Factor ,

# alscience \_nvironmental aboratories, Inc.

#### **Analytical Report**

Cleath & Associates 1390 Oceanaire Drive San Luis Obispo, CA 93405-4920 Date Received: Work Order No: Preparation: Method:

04/07/06 06-04-0319 **EPA 3520B EPA 1625CM** 

Page 1 of 2

							Page 1 01 Z
Project: WMP TASK 3		Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
lient Sample Number		06-04-0319-1	04/06/06	Aqueous	04/08/06	04/10/06	06040BL03
30S/10E-13F1		00-04-0310-1		-			· · · ·
'arameter	Result	RL	<u>DF</u>	Qual	<u>Units</u>		
-Nitrosodimethylamine	ND	2.0	1		ng/L		
iumogates:	REC (%)	Control Limits		<u>Qual</u>			
,4-Dichlorobenzene-d4	101	50-130					
30S/11E-17E9		06-04-0319-2	04/06/06	Aqueous	04/08/06	04/10/06	060408L03
	Result	RL	<u>D</u> E	Qual	<u>Units</u>		
Parameter	<del></del>	2.0	1		ng/L		
1-Nitrosodimethylamine	ND	2.0	•				
Surrogates:	<u>REC (%)</u>	Control Limits		Qual			
1,4-Dichlorobenzene-d4	102	50-130					
30S/10E-13Q1		06-04-0319-3	04/06/06	Aqueous	04/08/06	04/10/06	060408L03
	Result		<b>D</b> E	Qual	<u>Units</u>		
<u>Parameter</u>		2	1		ng/L		
N-Nitrosodimethylamine	12	2	•	- 1			
Surrogates:	REC (%)	Control Limits		<u>Qual</u>			
1,4-Dichlorobenzene-d4	97	50-130					
		06-04-0319-5	04/06/06	Aqueous	04/08/06	04/11/06	060408L03
30S/11E-7Q1							
Parameter	Result	BL	<u>DE</u>	Qual	<u>Units</u>		
N-Nitrosodimethylamine	17	2	1		ng/L		
Surrogates:	REC (%)	Control Limits		<u>Qual</u>	i i		
1,4-Dichlorobenzene-d4	91	50-130					
-							

DF - Dilution Factor ,

# alscience nvironmental aboratories, Inc.

#### **Analytical Report**

Cleath & Associates 1390 Oceanaire Drive San Luis Obispo, CA 93405-4920 Date Received: Work Order No: Preparation: Method: Units: 05/09/06 06-05-0545 EPA 5030B SRL 524M-TCP ug/L

Project: TASK 3 WATER QUALITY

Page 1 of 1

Troject. There was				b Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batc	h ID
Client Sample Number 30S/11E-18F1			06-05-		05/08/06	Aqueous	05/09/06	05/09/06	060509L	01
Parameter	Result ND	<u>RL</u> 0.0050	DE 1	Qual	Parameter 1,4-Dioxane		Res ND		<u>D</u> E 1	Qual
1.2,3-Trichloropropane  Method Blank	1,12		099-12	-036-34	N/A	Aqueous	05/09/06	05/09/06	0605091	01
Parameter 1,2,3-Trichloropropane	Result ND	<u>RL</u> 0.0050	<u>DE</u> 1	Qual	Parameter 1,4-Dioxane		<u>R</u> e ND		DE 1	Qual

# alscience \_nvironmental aboratories, Inc.

# **Analytical Report**

Cleath & Associates 1390 Oceanaire Drive San Luis Obispo, CA 93405-4920 Date Received: Work Order No: Preparation: Method: Units:

04/07/06 06-04-0319 EPA 5030B SRL 524M-TCP ug/L

Page 1 of 1

Project: WMP TASK 3

Project: WMP TASK 3				Sample	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bate	ch ID
Client Sample Number			06-04-03	umber 319-1	04/06/06	Aqueous	04/07/06	04/07/06	060407L	_01
30S/10E-13F1 Parameter	Result	<u>RL</u> 0.0050	DE 1	Qual	Parameter 1,4-Dioxane		Rest ND	at RL 2.0	DF 1	Qual
1,2,3-Trichloropropane	ND	0.0030	06-04-0	319-2	04/06/06	Aqueous	04/07/06	04/07/06	060407	L01
30S/11E-17E9 Parameter	Result	RL	DE	Qual	Parameter 1.4-Dioxane		Res	ult RL 2.0	DE 1	Qual
1,2,3-Trichloropropane	ND	0.0050	06-04-0	319-3	04/06/06	Aqueous	04/07/06	04/07/06	060407	L01
30S/10E-13Q1	Result	RL 0.00FD	DE	Qual	Parameter 1.4-Dioxane		Res ND		<u>DE</u> 1	Qual
1,2,3-Trichloropropane	ND	0.0050	06-04-1	0319-5	04/06/06	Aqueous	04/07/06	04/07/06	060407	L01
30S/11E-7Q1	Result	RL 0.0050	DF	Qual	Parameter 1,4-Dioxane		Res ND		<u>DF</u> 1	Qual
1,2,3-Trichloropropane	ND	0.0050	099-12	-036-19	N/A	Афиеоца	04/07/06	04/07/06	06040	7L01
Method Blank  Parameter 1,2,3-Trichloropropane	<u>Result</u> ND	<u>Ri.</u> 0.0050	DE	Qual	Parameter 1,4-Dioxane		<u>Re</u> NC	<u>sult RL</u> ) 2.0	DE 1	<u>Qual</u>

DF - Dilution Factor , Qual - Qualifiers



# Hygienic Laboratory

# The University of Iowa

Date of report: 05-10-2006

SAN LUIS OBISPO CA 93405

Sample Number
Date Received
Project

Date Collected Collection Site Collection Town

Description
Reference
Collector
Phone
Purchase Order

200603709 04-07-2006

04-06-2006 08:27 equipment blank #1

Los Osos water

WMP TASK 3 WATER QUA HARRIS SPENCER

(805) 543-1413

Comments

Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.

#### Results of Analyses

misc pharma/antibiotic/pcp by LC/MS/MS

	Concentration	Quantitation Limit
Analyte	ng/L	ng/L
Acetominophen	<5.0	5.0
ffeine	<16	16
Arbamazepine	<1.0	1.0
Cotinine	<1.0	1.0
1,7-Dimethylxanthine	<10	
DEET	<7.0	7.0
lbuprofen	<2.0	2.0
Lincomycin	<2.0	2.0
Sulfadimethoxine	<1.0	1.0
Sulfamethazine	<1.0	1.0
Sulfamethoxazole	<1.0	1.0
Sulfathiazole	<1.0	1.0
Triclosan	2.1	2.0
Trimethoprim	<2.0	2.0
Tylosin	<2.0	2.0

Comments

Trace level of triclosan (antibacterial in hand soaps) found in equipment blank 1. It was not observed in any other sample.

Date Analyzed: 04-13-2006 Method: PHARMA LC MISC Date Prepared: 04-13-2006

Preparation Method: PHARMA LC-1

Analyst: JDV Verified: DLZ Analyst: KB

Verified: GJ

Page 1 - Continued on next page



# Hygienic Laboratory

# The University of Iowa

Sample Number 20060370

CC/MS Extractables - Hormones & Sterols

GC/MD Extrac	ables - Hormones & Sterois Concentration	Quantitation Limit
	ng/L	ng/L
Analyte	<1000	1000
Testosterone	<50	50
Equilenin	<200	200
Estriol	<1000	1000
Progesterone		100
Coprostan-3-ol	<100	50
Cholesterol	430	100
Dihydrocholesterol	<100	
Stigmasterol	<100	100
Sitosterol	100	100
	<100	100
Stigmastanol Comments Please note the hormones are quality	atively determined in this	

Comments

Date Analyzed: 05-04-2006 Method: UHL 8270

Date Prepared: 04-19-2006 paration Method: NEIC/EPA/AOAC Analyst: ES Verified: TC

Analyst: SE,GJ Verified: GJ

Description of units used within this report

ng/L - Nanograms per Liter

Quant Limit - Lowest concentration reliably measured

Iowa Laboratory Certification No. 027. AIHA, NELAP, USEPA, NVLAP #101288-0 and other credentials available upon request.

If you have any questions please call Sherri Marine at 800/421-IOWA (4692) or 319/335-4500. Thank you.



# Hygienic Laboratory

# The University of Iowa

Date of report: 05-10-2006

SAN LUIS OBISPO CA 93405

Sample Number Date Received Project

Date Collected
Collection Site
Collection Town
Description

Reference Collector Phone Purchase Order 200603712 04-07-2006

04-06-2006 14:30 equipment blank #2

Los Osos water

WMP TASK 3 WATER QUA

HARRIS SPENCER (805) 543-1413

Comments

Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.

#### Results of Analyses

misc pharma/antibiotic/pcp by LC/MS/MS

misc pharma/antibiotic/pcp by LC/MS/MS				
	Concentration	Quantitation Limit		
Analyte	ng/L	ng/L		
Acetominophen	<5.0	5.0		
ffeine	<16	16		
rbamazepine	<1.0	1.0		
	<1.0	1.0		
Cotinine	<10	10		
1,7-Dimethylxanthine	<7.0	7.0		
DEET	<2.0	2.0		
Ibuprofen	<2.0	2.0		
Lincomycin	<1.0	1.0		
Sulfadimethoxine	<1.0	1.0		
Sulfamethazine		1.0		
Sulfamethoxazole	<1.0	1.0		
Sulfathiazole	<1.0			
Triclosan	<2.0	2.0		
Trimethoprim	<2.0	2.0		
Tylosin	<2.0	2.0		
Deta Analysis 04 12 2006		Analyst: JDV		

Date Analyzed: 04-13-2006 Method: PHARMA LC MISC Date Prepared: 04-13-2006

Preparation Method: PHARMA LC-1

Verified: DLZ Analyst: KB

Verified: GJ

GC/MS Extractables - Hormones & Sterols

GC/M2 EXHACISIDIES	- Hormones et perton	
	Concentration	Onantitation Lumit
	CHROMAN	
	ne/f	ng/L
Analyte		
(8.1)	<1000	1000
Testosterone	<u> </u>	

Page 1 - Continued on next page



### The University of Iowa

Page 2 Sample Number 200603712

GC/MS Extractables - Hormones & Sterols

GC/MS Extr	actables - normones de becions	
	Concentration	Quantitation Limit ng/L
Analyte	ng/L	ng/L 50
Equilenin	<50 <200	200
Estriol	<1000	1000
Progesterone	<100	100
Coprostan-3-ol	420	50
Cholesterol Dihydrocholesterol	<100	100
Stigmasterol	<100	100
Sitosterol	<100	100
Stigmastanol	<100	
DI the hormoner are all	TITATIVELV NELETIMILEA III IIIIO	1

Comments Please note the hormones are qualitatively determined in this

test.

Date Analyzed: 05-04-2006

Method: UHL 8270 Date Prepared: 04-19-2006

Preparation Method: NEIC/EPA/AOAC

Analyst: ES

Verified: TC Analyst: SE,GJ

Verified: GJ

Description of units used within this report

ng/L - Nanograms per Liter Quant Limit - Lowest concentration reliably measured

Iowa Laboratory Certification No. 027. AIHA, NELAP, USEPA, NVLAP #101288-0 and other credentials available upon request.



#### The University of Iowa

Date of report: 05-10-2006

H.J. Mah. Mantabilia SPENCER HARRIS **CLEATH & ASSOCIATES** 1390 OCEANAIRE DR

SAN LUIS OBISPO CA 93405

Sample Number Date Received

04-07-2006 Project

Date Collected Collection Site

04-06-2006 08:35 clean water blank Los Osos

Collection Town Description Reference

water

200603708

Collector **Phone** 

WMP TASK 3 WATER QUA HARRIS SPENCER

(805) 543-1413

Purchase Order

Comments

Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.

#### Results of Analyses

misc pharma/antibiotic/pcp by LC/MS/MS

mac post and	Concentration	Quantitation Limit
Analyte	ng/L	ng/L
Acetominophen	<5.0	5.0
ffeine	<16	16
bamazepine	<1.0	1.0
Cotinine	<1.0	1.0
1,7-Dimethylxanthine	<10	10
DEET	<7.0	7.0
Ibuprofen	<2.0	2.0
Lincomycin	<2.0	2.0
Sulfadimethoxine	<1.0	1.0
Sulfamethazine	<1.0	1.0
Sulfamethoxazole	<1.0	1.0
Sulfathiazole	<1.0	1.0
Triclosan	<2.0	2.0
Trimethoprim	<2.0	2.0
Tylosin	<2.0	2.0
1 1 100111		Applyet: IDV

Date Analyzed: 04-13-2006 Method: PHARMA LC MISC Date Prepared: 04-13-2006

Preparation Method: PHARMA LC-1

Analyst: JDV Verified: DLZ Analyst: KB

Verified: GJ

CC/MS Extractables - Hormones & Sterols

COMB Elizabeth	Concentration ne/L	Quantitation Limit ng/L
Testosterone	<1000	1000

Page 1 - Continued on next page



### The University of Iowa

Page 2 Sample Number 200603708

GC/MS Extractables - Hormones & Sterols

GC/MS	Extractables - Hormones & Sterois	
	Concentration	Quantitation Limit ng/L
Analyte	ng/L  <50	50
Equilenin	<200	200
Estriol	<1000	1000
Progesterone Coprostan-3-ol	<100	100
Cholesterol	600	50
Dihydrocholesterol	<100	100
Stigmasterol	230	100
Sitosterol	<100	100
Stigmastanol	ties in the determined in this	

Comments Please note the hormones are qualitatively determined in this

test.

Date Analyzed: 05-04-2006

Method: UHL 8270 Date Prepared: 04-19-2006

Preparation Method: NEIC/EPA/AOAC

Analyst: ES

Verified: TC Analyst: SE,GJ

Verified: GJ

Description of units used within this report

ng/L - Nanograms per Liter

Quant Limit - Lowest concentration reliably measured

Iowa Laboratory Certification No. 027. AIHA, NELAP, USEPA, NVLAP #101288-0 and other credentials available upon request.



#### The University of Iowa

Date of report: 05-10-2006

SAN LUIS OBISPO CA 93405

Sample Number 200
Date Received 04-0

Project bate Collected

Date Collected
Collection Site
Collection Town
Description

Reference
Collector
Phone
Purchase Order

200603707 04-07-2006

04-06-2006 10:25 305/10e-13f1 Los Osos water

WMP TASK 3 WATER QUA HARRIS SPENCER

(805) 543-1413

Comments

Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.

#### Results of Analyses

misc pharma/antibiotic/pcp by LC/MS/MS

	Concentration	Quantitation Limit
Analyte	ng/L	ng/L
Acetominophen	<5.0	5.0
ffeine	<16	16
rbamazepine	<1.0	1.0
Cotinine	<1.0	1.0
1,7-Dimethylxanthine	<10	10
DEET	<7.0	7.0
Ibuprofen	<2.0	2.0
Lincomycin	<2.0	2.0
Sulfadimethoxine	<1.0	1.0
Sulfamethazine	<1.0	1.0
Sulfamethoxazole	115	10
Sulfathiazole	<1.0	1.0
Triclosan	<2.0	2.0
Trimethoprim	<2.0	2.0
Tylosin	<2.0	2.0
1 yiOSIII		

Date Analyzed: 04-13-2006 Method: PHARMA LC MISC Date Prepared: 04-13-2006

Preparation Method: PHARMA LC-1

Analyst: JDV Verified: DLZ Analyst: KB Verified: GJ

GC/MS Extractables - Hormones & Sterols

A	nalvie	Concentration ng/L	Quantitation Limit ng/L
T	estosterone	<1000	1000



### The University of Iowa

Page 2 Sample Number 200603707

GC/MS Extractables - Hormones & Sterols

	Concentration	
Analyte	ng/L	ng/L
Equilenin	<50	50
Estriol	<200	200
Progesterone	<1000	1000
Coprostan-3-ol	<100	100
Cholesterol	350	50
Dihydrocholesterol	<100	100
Stigmasterol	270	100
Sitosterol	1900	100
Stigmastanol	<100	100

Comments Please note the hormones are qualitatively determined in this

test.

Date Analyzed: 05-04-2006

Method: UHL 8270

Date Prepared: 04-19-2006

Preparation Method: NEIC/EPA/AOAC

Analyst: ES

Verified: TC Analyst: SE,GJ

Verified: GJ

Description of units used within this report

ng/L - Nanograms per Liter

Quant Limit - Lowest concentration reliably measured

Iowa Laboratory Certification No. 027. AIHA, NELAP, USEPA, NVLAP #101288-0 and other credentials available upon request.



### The University of Iowa

Date of report: 05-10-2006

Halandhalalalalandalalalal SPENCER HARRIS **CLEATH & ASSOCIATES** 1390 OCEANAIRE DR

SAN LUIS OBISPO CA 93405

Sample Number Date Received

**Project** 

Date Collected Collection Site

Collection Town Description Reference Collector

Phone

200603710

04-07-2006

04-06-2006 13:30 305/10e-13q1 Los Osos

water

WMP TASK 3 WATER QUA

HARRIS SPENCER (805) 543-1413

Purchase Order

Comments

Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.

#### Results of Analyses

misc pharma/antibiotic/pcp by LC/MS/MS

MISC puarma	Concentration	Quantitation Limit
L. Alexan	ng/L	ng/L
Analyte	<5.0	5.0
Acetominophen	<16	16
ffeine	26	1.0
arbamazepine	<1.0	1.0
Cotinine	<10	10
1,7-Dimethylxanthine	<7.0	7.0
DEET	<2.0	2.0
Ibuprofen	<2.0	2.0
Lincomycin Sulfadimethoxine	<1.0	1.0
Sulfamethazine	<1.0	1.0
Sulfamethoxazole	300	10
	<1.0	1.0
Sulfathiazole	<2.0	2.0
Triclosan	<2.0	2.0
Trimethoprim	<2.0	2.0
Tylosin		Analyst: JDV

Date Analyzed: 04-13-2006 Method: PHARMA LC MISC Date Prepared: 04-13-2006

Preparation Method: PHARMA LC-1

Analyst: JDV Verified: DLZ

Analyst: KB Verified: GJ

CC/MS Extractables - Hormones & Sterols

GC/MS Extractable	3 - HULMIONGS & DIGIGE	
	Companiestica	Onantitation Limit
	COllectington	
	<b>r</b>	no/I
A ma barta	HEAT.	
Analyte	*1000	1000
The standard of	<1000	1000
Testosterone	<u></u>	



### The University of Iowa

Page 2 Sample Number 200603710

GC/MS Extractables - Hormones & Sterols

ng/L	Quantitation Limit ng/L
<50	50
<200	200
<1000	1000
<100	100
	50
	100
	100
	100
<100	100
	<200 <1000 <100 310 <100 <100 120

Comments Please note the hormones are qualitatively determined in this

test.

Date Analyzed: 05-04-2006

Method: UHL 8270 Date Prepared: 04-19-2006

Preparation Method: NEIC/EPA/AOAC

Analyst: ES

Verified: TC Analyst: SE,GJ

Verified: GJ

Description of units used within this report

ng/L - Nanograms per Liter

Quant Limit - Lowest concentration reliably measured

Iowa Laboratory Certification No. 027. AIHA, NELAP, USEPA, NVLAP #101288-0 and other credentials available upon request.



#### The University of Iowa

Date of report: 05-10-2006

SAN LUIS OBISPO CA 93405

Sample Number Date Received Project

Date Collected
Collection Site
Collection Town
Description

Collector Phone

**Purchase Order** 

200603711

04-07-2006

04-06-2006 16:00 305/11e-7q1 Los Osos

Description water
Reference WMP

WMP TASK 3 WATER QUA

HARRIS SPENCER (805) 543-1413

Comments

Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.

#### Results of Analyses

misc pharma/antibiotic/pcp by LC/MS/MS

Concentration	Quantitation Limit
ng/L	ng/L
<5.0	5.0
<16	16
31	1.0
<1.0	1.0
<10	10
<7.0	7.0
<2.0	2.0
<2.0	2.0
<1.0	1.0
<1.0	1.0
92	10
<1.0	1.0
<2.0	2.0
<2.0	2.0
<2.0	2.0
	Concentration   ng/L     < 5.0   < 16     31     < 1.0     < 10     < 7.0   < 2.0   < 2.0   < 2.0   < 1.0   < 1.0   < 1.0   < 1.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0   < 2.0

Date Analyzed: 04-13-2006 Method: PHARMA LC MISC Date Prepared: 04-13-2006

Preparation Method: PHARMA LC-1

Analyst: JDV

Verified: DLZ Analyst: KB

Verified: GJ

GC/MS Extractables - Hormones & Sterols

	Concentration no./l.	Quantitation Limit ng/L
Testosterone	<1000	1000



### The University of Iowa

Page 2 Sample Number 200603711

GC/MS Extractables - Hormones & Sterols

	Concentration	Quantitation Limit
Analyte	ng/L	ng/L
	<50	50
Equilenin	<200	200
Estriol	< 1000	1000
Progesterone	<100	100
Coprostan-3-ol		50
Cholesterol	570	100
Dihydrocholesterol	<100	
Stigmasterol	<100	100
Sitosterol	180	100
	<100	100
Stigmastanol	and this	

Comments Please note the hormones are qualitatively determined in this

Date Analyzed: 05-04-2006

Method: UHL 8270 Date Prepared: 04-19-2006

Preparation Method: NEIC/EPA/AOAC

Analyst: ES

Verified: TC Analyst: SE,GJ

Verified: GJ

Description of units used within this report

ng/L - Nanograms per Liter

Quant Limit - Lowest concentration reliably measured

Iowa Laboratory Certification No. 027. AIHA, NELAP, USEPA, NVLAP #101288-0 and other credentials available upon request.



#### The University of Iowa

Date of report: 05-10-2006

SAN LUIS OBISPO CA 93405

Sample Number Date Received Project

Date Collected
Collection Site
Collection Town

Reference Collector Phone

Description

Purchase Order

200603706

04-07-2006

04-06-2006 11:30 305/11e-17e9 Los Osos

water

WMP TASK 3 WATER QUA

HARRIS SPENCER (805) 543-1413

Comments

Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.

Collection date on labels 4-4-06 was incorrect; per David Williams it should be 4-6-06 as listed on paperwork.

#### Results of Analyses

misc pharma/antibiotic/pcp by LC/MS/MS

·	Concentration	Quantitation Limit
alyte	ng/L	ng/L
etominophen	<5.0	5.0
Caffeine	<16	16
Carbamazepine	98	1.0
Cotinine	<1.0	1.0
1,7-Dimethylxanthine	<10	10
DEET	<7.0	7.0
Ibuprofen	<2.0	2.0
Lincomycin	<2.0	2.0
Sulfadimethoxine	<1.0	1.0
Sulfamethazine	<1.0	1.0
Sulfamethoxazole	250	10
Sulfathiazole	<1.0	1.0
Triclosan	<2.0	2.0
Trimethoprim	<2.0	2.0
Tylosin	<2.0	2.0

Date Analyzed: 04-13-2006 Method: PHARMA LC MISC Date Prepared: 04-13-2006

Preparation Method: PHARMA LC-1

Analyst: JDV Verified: DLZ Analyst: KB

Verified: GJ



### The University of Iowa

Page 2 Sample Number 200603706

GC/MS Extractables - Hormones & Sterols

Concentration	Quantitation Limit
ng/L	ng/L
<1000	1000
<50	50
<200	200
<1000	1000
<100	100
	50
	100
	100
	100
< 100	100
	ng/L  <1000 <50 <200 <1000 <100 420 <100 310 2200

Comments

Please note the hormones are qualitatively determined in this

test.

Date Analyzed: 05-04-2006

Method: UHL 8270 Date Prepared: 04-19-2006

aration Method: NEIC/EPA/AOAC

Analyst: ES

Verified: TC Analyst: SE,GJ

Verified: GJ

Description of units used within this report

ng/L - Nanograms per Liter

Quant Limit - Lowest concentration reliably measured

Iowa Laboratory Certification No. 027. AIHA, NELAP, USEPA, NVLAP #101288-0 and other credentials available upon request.



#### The University of Iowa

Date of report: 05-18-2006

SAN LUIS OBISPO CA 93405

Date Received Project 2

Date Collected
Collection Site

Collection Town
Description
Reference
Collector

Phone Purchase Order 200605624

05-09-2006

05-08-2006 15:00 30s/11e-18f1 Los Osos

water

TASK 3 WATER QUALITY HARRIS SPENCER

(805) 543-1413

Comments

Upon arrival; sample met container and preservation requirements for

the analysis requested;

EXCEPT: sample temperature exceeds 6 degrees celsius.

Please review carefully your sample results for additional analyte

comments or method exceptions.

#### Results of Analyses

misc pharma/antibiotic/pcp by LC/MS/MS

	Concentration	Quantitation Limit
lyte	ng/L	ng/L
etominophen	<1.0	1.0
Caffeine	<14	14
Carbamazepine	<1.0	1.0
Cotinine	<1.0	1.0
1,7-Dimethylxanthine	<2.0	2.0
DEET	<6.9	6.9
Ibuprofen	<1.0	1.0
Lincomycin	<1.0	1.0
Sulfadimethoxine	<1.0	1.0
Sulfamethazine	<1.0	1.0
Sulfamethoxazole	1.5	1.5
Sulfathiazole	<1.0	1.0
Triclosan	1.4	1.0
Trimethoprim	<1.0	1.0
Tylosin	<1.0	1.0
D . 4 1 1 05 11 0006		Applyor: IDV

Date Analyzed: 05-11-2006 Method: PHARMA LC MISC Date Prepared: 05-11-2006

Preparation Method: PHARMA LC-1

Analyst: JDV Verified: DLZ Analyst: KB

Verified: GJ

GC/MS Extractables - Hormones & Sterols

OCIMB Extractable	3 - MOREMONES OF DIGITOR	
Analyte	Concentration ng/L	Quantitation Limit ng/L
Testosterone	<1000	1000

Page 1 - Continued on next page



### The University of Iowa

Page 2 Sample Number 200605624

GC/MS Extractables - Hormones & Sterols

	Concentration	Quantitation Limit
Analyte	ng/L	ng/L
Equilenin	<50	50
Estriol	<200	200
Progesterone	<1000	1000
Coprostan-3-ol	<100	100
Cholesterol	700	50
Dihydrocholesterol	<100	100
Stigmasterol	<100	100
Sitosterol	150	100
Stigmastanol	<100	100
	qualitatively determined in this	
test.	<u> </u>	

Date Analyzed: 05-11-2006

Method: UHL 8270

Analyst: MP

Verified: TC

Description of units used within this report

ng/L - Nanograms per Liter

Quant Limit - Lowest concentration reliably measured

Iowa Laboratory Certification No. 027. AIHA, NELAP, USEPA, NVLAP #101288-0 and other credentials available upon request.



Communication dated May 16, 2006 from Dr. John Vargo



#### HYGIENIC LABORATORY

iowa's Environmental and Public Health Laboratory

102 Oakdale Campus, H101 OH iowa City, Iowa 52242-5002 319-335-4500 Fax 319-335-4555 www.uhl.uiowa.edu

May 16, 2006

Mr. Spencer Harris Cleath & Associates 1390 Oceanaire Drive San Luis Obispo, CA 93405

Dear Mr. Harris:

This letter is being sent to you to offer my interpretations and opinions regarding two sets of groundwater samples that your company submitted to our laboratory for analysis for pharmaceuticals, personal care products, antibiotics, hormones, and sterols. It is my understanding that the intent of this testing was to assess whether septic systems are impacting water quality for an aquifer that is being proposed for use as drinking water.

Cholesterol (a steroid that can come from plant or animal origin) was detected in all submitted samples. This is normal. The amounts observed are not considered elevated. Sitosterol (a plant steroid) was observed in all samples. Amounts less than 500 ng/mL are not uncommon for clean water sources and laboratory blanks. Two samples showed levels of approximately 2000 ng/mL which is considered higher than normal. Stigmasterol (a plant steroid) was detected in two samples, but at levels that were low and not of concern. Coprostan-3-ol (a steroid formed in the digestive systems of humans and other mammals) is a good indicator of fecal contamination. It was not observed in any sample. The presence of plant steroids at low concentrations should not be unexpected as water that is moving through the soil to underground aquifers will come in contact with vegetation from which the steroids can be leached.

Carbamazepine (an anti-seizure drug) was detected in three of five Los Osos water samples. Sulfamethoxazole (a human antibiotic) was detected in all five Los Osos samples. Trace amounts of triclosan (an antibacterial used in liquid hand soaps) was detected in the last Los Osos sample that was submitted, but it is possible it could be due to handling contamination.

I am not a toxicologist so it is difficult to give a perspective regarding whether the presence of carbamazepine and sulfamethoxazole at sub part-per-billion (ppb) levels creates any health risk for a consumer who is using this water for drinking and cooking on a daily basis. These chemicals are present at a very low level. The USEPA has set maximum contaminant levels (maximum allowable concentration for a given chemical in drinking water) for select contaminants of concern in drinking water. The maximum contaminant levels are presented for a few select environmental contaminants so that you can compare the concentration of carbamazepine and sulfamethoxazole to these chemicals which are known to be harmful if injested in large enough amounts: atrazine (3 ppb), carbon tetrachloride (5 ppb), 2,4-D (70 ppb), polychlorinated biphenyls (0.5 ppb), PAHs (0.2 ppb). Considering that these two chemicals are registered for use as human pharmaceuticals, it is

unlikely they would present an adverse health risk at the levels they were detected. Neither the USEPA or USFDA have any guidelines regarding safe levels for these emerging contaminants in drinking water.

The presence of these two pharmaceuticals is an indication that there is a source(s) of contaminants that has leached, or is presently leaching, into the groundwater source. These chemicals will only be found in human wastewater sources. They do not occur naturally nor are they used in agriculture. The two detected pharmaceuticals are highly soluble in water and do not have a tendency to bind in soil, as many organic chemicals do. Considering that these pharmaceuticals have been found at low levels in most of the groundwater samples that you submitted, it is likely there are other chemical contaminants present in the water as we only tested for a select group.

It is very difficult for me to make an assessment regarding overall water quality and safety based on the testing data that we have. In my opinion, what has been found so far is not alarming but at the same time clearly indicates that some contamination of the water has occurred. Additional testing for other potential chemical contaminants should be considered if you have not already done so.

Please contact me if you would like to discuss the results or the need for any future testing. The University Hygienic Laboratory is certified for most EPA drinking water methods for inorganic and organic chemicals, microbiological organisms, as well as customized tests such as the pharmaceuticals and sterols/hormones.

Sincerely,

John D. Vargo, Ph.D. Program Manager Environmental Health 319-335-4478 john-vargo@uiowa.edu